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RENEWABLE ENERGY INDUSTRY DEVELOPMENT ACT OF 1983

HEARING

BEFORE THE

SUBCOMMITTEE ON
ENERGY CONSERVATION AND SUPPLY

OF THE

COMMITTEE ON
ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE

NINETY-EIGHTH CONGRESS

SECOND SESSION

ON

H.R. 3169

AN ACT TO AMEND THE ENERGY POLICY AND CONSERVATION ACT TO FACILITATE COMMERCE BY THE DOMESTIC RENEWABLE ENERGY INDUSTRY AND RELATED SERVICE INDSTRIES

MARCH 22, 1984

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RENEWABLE ENERGY INDUSTRY DEVELOPMENT ACT OF 1983

THURSDAY, MARCH 22, 1984

U.S. SENATE,
SUBCOMMITTEE ON ENERGY CONSERVATION AND SUPPLY,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10 a.m., in room SD-366, Dirksen Office Building, Hon. Mark O. Hatfield, presiding.

Present: Senator Hatfield.

Also present: Tom Winn, professional staff member; and James T. Bruce, counsel for the minority.

OPENING STATEMENT OF HON. MARK O. HATFIELD, A U.S. SENATOR FROM THE STATE OF OREGON

Senator HATFIELD. The meeting will come to order. This morning the Subcommittee on Energy Conservation and Supply will receive testimony on H.R. 3169, the Renewable Energy Industry Development Act, chiefly sponsored in the House by Congressman Ron Wyden.

Since the Arab oil embargo of 1973, Americans have developed a new energy consciousness, centered around energy conservation and development of alternative energy systems.

This new consciousness has led to the development of a renewable energy industry in the United States, and great strides have been made in manufacturing cost-effective solar, wind, and biomass energy systems. A new American industry has been born to meet the needs of an energy conscious society.

In recent years, the American renewable energy industry has been threatened by foreign renewable energy firms whose products receive government subsidies and are promoted by aggressive foreign government export programs. These policies have cut into the U.S. market share of renewable energy products overseas and have made it more difficult for U.S. renewable industries to compete at home.

This morning the subcommittee will hear from witnesses regarding these problems and examine ways in which they can be overcome. Witnesses are encouraged to submit their complete testimony for the hearing record and summarize their oral comments. The first witness will be Mr. James Phillips from the Department of Commerce.

[The text of H.R. 3169 follows:]

II

98TH CONGRESS
1ST SESSION

H. R. 3169

IN THE SENATE OF THE UNITED STATES

NOVEMBER 16 (legislative day, NOVEMBER 14), 1983

Received; read twice and referred to the Committee on Energy and Natural Resources

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AN ACT

To amend the Energy Policy and Conservation Act to facilitate commerce by the domestic renewable energy industry and related service industries.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Renewable Energy Industry Development Act of 1983".

SEC. 2. Part B of title II of the Energy Policy and Conservation Act (42 U.S.C. 6271 and following), relating to the international energy program, is amended by adding at the end thereof the following:

"DOMESTIC RENEWABLE ENERGY INDUSTRY AND RELATED SERVICE INDUSTRIES

"SEC. 256. (a) It is the purpose of this section to implement the responsibilities of the United States under chapter VII of the international energy program with respect to development of alternative energy by facilitating the overall abilities of the domestic renewable energy industry and related service industries to create new markets.

"(b)(1) Before the later of—

"(A) 6 months after the date of the enactment of this section, and

"(B) May 31, 1985,

the Secretary of Commerce shall conduct an evaluation regarding the domestic renewable energy industry and related service industries and submit a report of his findings to the Congress.

"(2) Such evaluation shall include—

"(A) an assessment of the technical and commercial status of the domestic renewable energy industry and related service industries in domestic and foreign markets;

"(B) an assessment of the Federal Government's activities affecting commerce in the domestic renewable energy industry and related service industries and in consolidating and coordinating such activities within the Federal Government; and

"(C) an assessment of the aspects of the domestic renewable energy industry and related service industries in which improvements must be made to increase the international commercialization of such industry.

"(c)(1) On the basis of the evaluation under subsection (b), the Secretary of Commerce shall, consistent with existing law, establish a program for enhancing commerce in renewable energy technologies and consolidating or coordinating existing activities for such purpose.

"(2) Such program shall provide for—

"(A) the broadening of the participation by the domestic renewable energy industry and related service industries in such activities;

"(B) the promotion of the domestic renewable energy industry and related service industries on a worldwide basis;

"(C) the participation by the Federal Government and the domestic renewable energy industry and related service industries in international standard-setting activities; and

"(D) the establishment of an information program under which—

"(i) technical information about the domestic renewable energy industry and related service industries shall be provided to appropriate public and private officials engaged in commerce, and

"(ii) marketing information about export opportunities shall be available to the domestic renewable energy industry and related service industries.

"(3) Necessary funds required for carrying out such program shall be requested in connection with fiscal years beginning after September 30, 1984.

"(d) There shall be established an interagency working group which, in consultation with the representative industry groups and relevant agency heads, shall make recommendations to coordinate the actions and programs of the Federal Government affecting commerce in renewable energy products and related services. The Secretary of Commerce shall be the chairman of such group. The heads of appropriate agencies may detail such personnel and may furnish such services to such working group, with or without reimbursement, as may be necessary to carry out its functions.".

(b) The table of contents for such Act is amended by inserting the following item after the item relating to section 255:

"Sec. 256. Domestic renewable energy industry and related service industries."

SEC. 3. The amendments made by this Act shall take effect on the date of the enactment of this Act.

Passed the House of Representatives November 16, 1983.

Attest: BENJAMIN J. GUTHRIE,
Clerk.

Senator **Hatfield**. I believe, Mr. Phillips, this is your first time before our committee, if I'm not mistaken.

Mr. **Phillips**. Yes, it is.

Senator **Hatfield**. In other words, you're going to get initiated.

Mr. **Phillips**. I am going to get initiated, yes, sir.

Senator **Hatfield**. Well, I think it will be a good experience. We are happy to welcome you here. If you would like to submit your testimony for the record we will have it printed in full, and you may proceed to summarize or handle your testimony as you wish.

Mr. **Phillips**. Fine, Mr. Chairman, I appreciate that.

STATEMENT OF JAMES R. PHILLIPS, DEPUTY ASSISTANT SECRETARY, CAPITAL GOODS AND INTERNATIONAL CONSTRUCTION, DEPARTMENT OF COMMERCE

Mr. **Phillips**. I'm James R. Phillips, Deputy Assistant Secretary for Capital Goods and International Construction in the Department of Commerce, and I represent the International Trade Administration, to speak on the development of international markets for U.S. renewable energy technologies, and to address the proposed legislation designated H.R. 3169 and entitled Renewable Energy Industry Development Act.

The committee has been furnished with the detailed statement from our Department, and with the chairman's permission I would like that statement placed in the record. I will summarize in a few words the documented information.

The needs identified by H.R. 3169 are now being addressed. The framework and structure now in place will insure an ongoing and effective effort. We fully support the intent and objectives of this legislation. However, we believe that this area no longer requires legislative action.

Over the past several years, the Department of Commerce has taken steps to address the problems and critical areas affecting international marketing of renewable energy products and services.

As my testimony indicates, our efforts are focused on each of the essential areas included in the proposed legislation.

In formulating our approach we have worked closely with renewable energy industry representatives, U.S. firms and other Government agencies. During the past 3 years, ITA's international trade specialists for the renewable energy industry have worked closely with industry and with company officials to increase sector exports.

The legislation proposed addresses three needs. It calls for the following: First, an evaluation of the domestic renewable energy industry and related services.

Second, establishment of a program for enhancing commerce in renewable energy technologies.

Third, establishment of an interagency working group on renewable energy.

A competitive assessment of this emerging industry sector is among the first group of such studies to be performed by the Commerce Department. This study, which will include an assessment of various exports, is scheduled for completion this year, and retains a very high priority in our objectives.

Two preliminary steps have already been taken. We have recently issued a grant to the U.S. Export Council for Renewable Energy. This money will finance a study of the policies and programs of five competitor nations which affect international renewable energy trade.

As the next step, we are scheduling a conference this year involving representatives of U.S. renewable energy firms, industry trade associations, Government agencies, and institutions.

The purpose of the conference is to identify the problems and concerns of the industry in international marketing.

The Department of Commerce has supported the increased overseas visibility of U.S. renewable energy industries. This has been accomplished by an active program formulated through consultation with the industry's Export Council and a cooperative relationship with the Department of Energy.

We have utilized our network of foreign commercial service offices, a mix of innovative market promotion techniques, time-tested trade event mechanisms, and the resourcefulness of the private sector to promote the products and services of U.S. firms overseas.

A key aspect of these efforts has been a joint industry-Government approach to export promotion of renewable energy. This approach is based on a formalized interagency agreement with the Department of Energy to support events and activities involving the export development of renewable energy products and services.

Eighteen additional trade events for renewable energy firms are planned through the end of fiscal 1986. The Department's efforts are not limited to trade events. The Department is assisting in the publishing and distribution of a renewable energy primer, which will be a primary source of information for the industry. We will conduct market research and trade-loss studies for industry distribution in selected major market countries.

In coordination with the Department of Energy, ITA will provide support and guidance for the promotion of worldwide acceptance of U.S. standards for these technologies.

Financing problems and opportunities will be explored at the International Marketing Conference sponsored by the Department of Commerce.

Our Department has participated in and continues to support interagency cooperation. We endorse all efforts to facilitate such cooperation. We believe multiagency efforts are essential to the coordination and efficient administration of Federal Government policies.

ITA has established close and very effective working relationships with both the Departments of Energy and State in support of our activities to encourage renewable energy private sector activities in international markets.

By taking advantage of ITA's major role in international trade development and the Energy Department's primary responsibility for the promotion of energy technologies, a joint program has been established to assist U.S. renewable energy firms in overseas markets.

ITA's international market development network and expertise combined with DOE's knowledge and experience in the development of technologies will continue to provide the strong stimulus needed to increase U.S. renewable energy overseas trade.

Our commitment and confidence in these efforts will insure a program that supports the intent and objectives of H.R. 3169.

I appreciate this opportunity to discuss ITA's renewable energy trade development program and would be happy to answer any questions that you may have.

[The prepared statement of Mr. Phillips follows:]

UNITED STATES DEPARTMENT OF COMMERCE
International Trade Administration
Washington, D.C. 20230

STATEMENT
OF
JAMES R. PHILLIPS
DEPUTY ASSISTANT SECRETARY
FOR CAPITAL GOODS AND INTERNATIONAL CONSTRUCTION

TESTIMONY BEFORE THE SUBCOMMITTEE ON
ENERGY CONSERVATION AND SUPPLY OF THE
SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE ON ENERGY CONSERVATION AND SUPPLY OF THE SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES, I AM JAMES R. PHILLIPS, DEPUTY ASSISTANT SECRETARY FOR CAPITAL GOODS AND INTERNATIONAL CONSTRUCTION IN THE U.S. DEPARTMENT OF COMMERCE. I AM PLEASED TO REPRESENT THE INTERNATIONAL TRADE ADMINISTRATION TO SPEAK TO YOU ABOUT THE DEVELOPMENT OF INTERNATIONAL MARKETS FOR U.S. RENEWABLE ENERGY TECHNOLOGIES.

DURING THE PAST THREE YEARS, THE INTERNATIONAL TRADE ADMINISTRATION (ITA) , THE U.S. DEPARTMENT OF ENERGY (DOE) AND THE RENEWABLE ENERGY INDUSTRIES HAVE WORKED TOGETHER TO INCREASE OVERSEAS MARKETING OPPORTUNITIES FOR U.S. FIRMS. THESE JOINT EFFORTS HAVE INCREASED THE VISIBILITY OF COMMERCIAL RENEWABLE ENERGY EQUIPMENT, PRODUCTS AND SERVICES IN MAJOR MARKET AREAS AROUND THE WORLD.

I WOULD LIKE TO BEGIN MY PRESENTATION WITH A BRIEF OVERVIEW OF THE RESPONSIBILITIES AND ORGANIZATION OF THE INTERNATIONAL TRADE ADMINISTRATION IN ORDER TO HIGHLIGHT ITA'S RESOURCES IN SUPPORTING PRIVATE SECTOR EXPORTING EFFORTS.

ITA RESPONSIBILITIES AND ORGANIZATION

THE PRIMARY OBJECTIVE OF THE INTERNATIONAL TRADE ADMINISTRATION IS TO PROMOTE AN IMPROVED TRADE POSITION FOR U.S. INDUSTRY IN A MANNER CONSISTENT WITH NATIONAL SECURITY AND FOREIGN AND ECONOMIC POLICIES. THE UNDER SECRETARY OF COMMERCE FOR INTERNATIONAL TRADE IS RESPONSIBLE FOR CARRYING OUT THIS OBJECTIVE. RESPONSIBILITIES

WITHIN THE INTERNATIONAL TRADE ADMINISTRATION FOR THE GATHERING OF INTERNATIONAL ECONOMIC AND COMMERCIAL INTELLIGENCE, DEVELOPMENT OF SPECIFIC COUNTRY TRADE POLICY OPTIONS, AND FORMULATION OF INDUSTRY TRADE POLICY OPTIONS/TRADE PROMOTION ACTIVITIES ARE LODGED RESPECTIVELY WITH THE DIRECTOR GENERAL OF THE U.S. AND FOREIGN COMMERCIAL SERVICES, AND THE ASSISTANT SECRETARIES FOR INTERNATIONAL ECONOMIC POLICY AND TRADE DEVELOPMENT.

U.S. AND FOREIGN COMMERCIAL SERVICES

THE 47 DISTRICT OFFICES OF THE U.S. COMMERCIAL SERVICE HAVE BEEN MERGED WITH THE 120 OVERSEAS POSTS OF THE U.S. FOREIGN COMMERCIAL SERVICE TO CONSTITUTE THE U.S. AND FOREIGN COMMERCIAL SERVICES. THE U.S. AND FOREIGN COMMERCIAL SERVICES ARE THE FRONT-LINE SOURCE IN THE UNITED STATES AND ABROAD FOR U.S. BUSINESSMEN SEEKING TO EXPLORE THE BENEFITS OF EXPORTING AND INVESTING OVERSEAS.

INTERNATIONAL ECONOMIC POLICY

ORGANIZED GEOGRAPHICALLY BY COUNTRY AND REGIONAL OFFICES, INTERNATIONAL ECONOMIC POLICY EMPLOYS THE SERVICES OF A HIGHLY QUALIFIED PROFESSIONAL STAFF OF ECONOMISTS, TRADE SPECIALISTS, AND POLICY ANALYSTS WHO MAINTAIN IN DEPTH KNOWLEDGE OF CURRENT ECONOMIC AND POLICY DEVELOPMENTS IN THEIR ASSIGNED COUNTRIES. THIS KNOWLEDGE IS COMPLEMENTED BY THE EXPERTISE OF THE FOREIGN COMMERCIAL SERVICE

OFFICERS THROUGH FREQUENT POST REPORTS ON THE COUNTRY'S ECONOMIC AND COMMERCIAL ACTIVITIES. EXTRACTS FROM THESE REPORTS ARE AVAILABLE TO U.S. FIRMS IN PUBLISHED FORM AS MARKET SUMMARIES, OVERSEAS BUSINESS REPORTS, AND FOREIGN ECONOMIC TRENDS.

TRADE DEVELOPMENT

THE PRIMARY OBJECTIVE OF ITA'S TRADE DEVELOPMENT ORGANIZATION IS TO IMPROVE THE COMPETITIVENESS OF U.S. INDUSTRIES IN INTERNATIONAL MARKETS. THIS IS ACCOMPLISHED THROUGH THE MANAGEMENT OF AN INTEGRATED POLICY, ANALYSIS AND PROMOTION PROGRAM FOR U.S. INDUSTRY SECTORS. THE EMPHASIS PLACED ON EACH COMPONENT OF THIS PROGRAM WILL BE BASED ON THE INDIVIDUAL INDUSTRY SECTOR'S COMPETITIVENESS, NEEDS AND INTERESTS.

WE HAVE RECENTLY COMPLETED A RESTRUCTURING OF THE TRADE DEVELOPMENT ORGANIZATION WHICH WILL STRENGTHEN OUR EFFORTS TO REACH THIS OBJECTIVE. OUR ORGANIZATION IS DIVIDED INTO NINE SEPARATE AREAS, EACH HEADED BY A DEPUTY ASSISTANT SECRETARY. SEVEN OF THESE AREAS GROUP SIMILAR OR ALLIED INDUSTRY SECTORS; THE REMAINING TWO ARE PROGRAM SPECIFIC. MY AREA OF RESPONSIBILITY IS THE CAPITAL GOODS INDUSTRIES GROUPING.

INTERNATIONAL TRADE SPECIALISTS WITHIN THE SEVEN INDUSTRY-RELATED AREAS ARE ASSIGNED RESPONSIBILITY FOR SPECIFIC INDUSTRY SECTORS. OUR INDUSTRY SPECIALISTS WILL CONTINUE TO WORK WITH COMMERCE DEPARTMENT ADVISORY COMMITTEES, INDUSTRY TRADE ASSOCIATIONS AND INDIVIDUAL FIRMS TO IDENTIFY THE PROBLEMS, ISSUES AND OPPORTUNITIES IN INCREASING INDUSTRY PARTICIPATION IN INTERNATIONAL TRADE.

DURING THE PAST THREE YEARS, ITA'S INTERNATIONAL TRADE SPECIALIST FOR THE RENEWABLE ENERGY INDUSTRY SECTOR HAS WORKED CLOSELY WITH INDUSTRY AND COMPANY OFFICIALS TO INCREASE SECTOR EXPORTS. IN COOPERATING WITH THE SECTOR-WIDE EXPORT COUNCIL FOR RENEWABLE ENERGY AND SEVERAL U.S. GOVERNMENT AGENCIES, WE HAVE INITIATED ACTIVITIES TO INCREASE FOREIGN PUBLIC AND PRIVATE SECTOR AWARENESS OF COMMERCIALLY VIABLE U.S. RENEWABLE ENERGY EQUIPMENT, PRODUCTS AND SERVICES. OUR EFFORTS HAVE RESULTED IN THE DEVELOPMENT OF A STRONG INDUSTRY/GOVERNMENT RELATIONSHIP WHICH FOCUSES ON THE SPECIFIC NEEDS AND INTERESTS OF THIS EMERGING INDUSTRY SECTOR. THIS SPECIFICALLY INCLUDES A COMPETITIVE ASSESSMENT OF U.S. RENEWABLE ENERGY TECHNOLOGIES IN THE INTERNATIONAL MARKETPLACE, WHICH WILL BE COMPLETED THIS SUMMER.

EXPORT PROMOTION FRAMEWORK

THE BASIC FRAMEWORK USED BY THE INTERNATIONAL TRADE ADMINISTRATION IN CARRYING OUT ITS EXPORT PROMOTION RESPONSIBILITIES WITH INDUSTRY IS A COMPREHENSIVE, MULTI-YEAR EXPORT DEVELOPMENT PLAN. DEVELOPED THROUGH CONSULTATION WITH INDUSTRY TRADE ASSOCIATIONS AND TRADE GROUPS, THE EXPORT DEVELOPMENT PLAN REPRESENTS A JOINT INDUSTRY/U.S. GOVERNMENT COOPERATIVE APPROACH TO INCREASE PRIVATE SECTOR ACTIVITY IN FOREIGN MARKETS. THE EXPORT DEVELOPMENT PLAN INTEGRATES THE RESULTS AND RECOMMENDATIONS OF THE COMPETITIVE ASSESSMENT PERFORMED FOR THE INDUSTRY SECTOR WITH AN EXPORT DEVELOPMENT STRATEGY JOINTLY DEVELOPED BY INDUSTRY AND GOVERNMENT. THE PLAN CONTAINS AN ECONOMIC/INTERNATIONAL TRADE PROFILE OF THE INDUSTRY, A TRADE POLICY/EXPORT DEVELOPMENT STRATEGY RECOMMENDED BY U.S. GOVERNMENT AND INDUSTRY REPRESENTATIVES, AND A PLAN OF ACTION BASED ON THOSE STRATEGY ELEMENTS ACCEPTABLE TO BOTH INDUSTRY AND THE COMMERCE DEPARTMENT. THE EXPORT DEVELOPMENT PLAN PROVIDES A MODEL FOR INDUSTRY/GOVERNMENT COOPERATION IN EXPORT PROMOTION, AND SERVES AS A GUIDE TO THE INTERNATIONAL TRADE ADMINISTRATION ON INDUSTRY'S FOREIGN MARKET INTERESTS AND EXPORT PROMOTION NEEDS. COPIES OF THE PLAN ARE DISTRIBUTED TO COMMERCIAL DISTRICT OFFICES ACROSS THE U.S., AND TO U.S. FOREIGN COMMERCIAL SERVICE POSTS WORLDWIDE.

IN NOVEMBER 1983, WE COMPLETED AN UPDATED EXPORT DEVELOPMENT PLAN FOR THE RENEWABLE ENERGY INDUSTRIES, COVERING FY '84, '85 AND '86. THE PLAN FOCUSES ON THE FOUR MOST COMMERCIALLY VIABLE SECTOR TECHNOLOGIES: SOLAR THERMAL, PHOTOVOLTAICS, BIOMASS AND WIND ENERGY. A REVISED PLAN, COVERING THE PERIOD FY '85-'87, WILL BE ISSUED LATER THIS FALL, FOLLOWING THE COMPLETION OF THE COMPETITIVE ASSESSMENT PERFORMED FOR THIS INDUSTRY SECTOR, AND AFTER CONSULTATIONS WITH THE EXPORT COUNCIL FOR RENEWABLE ENERGY.

PRESENT STATUS OF RENEWABLE ENERGY

MR. CHAIRMAN, THE OVERSEAS MARKET FOR RENEWABLE ENERGY EQUIPMENT, SYSTEMS AND PRODUCTS CONTINUES TO GROW AT A VERY RAPID PACE. DESPITE INCREASED COMPETITION FROM JAPAN AND SEVERAL EUROPEAN COUNTRIES, U.S. TECHNOLOGY HAS RETAINED ITS DOMINANT ROLE IN THIS EXPANDING MARKET.

ALTHOUGH EXPORT STATISTICS ARE NOT READILY AVAILABLE FOR THE MANY DIFFERENT RENEWABLE ENERGY PRODUCTS AND SYSTEMS, WORLDWIDE SALES OF PHOTOVOLTAIC CELLS AND MODULES ILLUSTRATE THE EXPLOSIVE GROWTH OF RENEWABLE ENERGY MARKETS, AS WELL AS THE DOMINANCE OF U.S. TECHNOLOGY. BASED ON PRIVATE SECTOR ESTIMATES, TOTAL WORLDWIDE SALES OF PHOTOVOLTAIC CELLS AND MODULES IN 1982 WAS 7.9 MEGAWATTS, VALUED AT APPROXIMATELY $83.1 MILLION. THE U.S. SHARE OF WORLDWIDE

SALES IN 1982 WAS ESTIMATED TO HAVE BEEN 88 PERCENT OR 6.9 MEGAWATTS, VALUED AT $72.6 MILLION. THIS REPRESENTS AN AVERAGE ANNUAL INCREASE IN U.S. SALES OF 85 PERCENT FROM 1980 LEVELS, ALLOWING THE U.S. TO RETAIN ITS SHARE OF WORLD PHOTOVOLTAICS TRADE.

ALTHOUGH MUCH OF THE WORLD MARKET FOR PHOTOVOLTAICS IS PRESENTLY IN THE U.S., THE OVERSEAS MARKET, ESPECIALLY IN DEVELOPING COUNTRIES, IS EXPECTED TO GROW RAPIDLY AS REMOTE POWER AND SUPPLEMENTAL POWER APPLICATIONS INCREASE DURING THIS DECADE. THE U.S. PHOTOVOLTAICS INDUSTRY IS WELL-PLACED TO TAKE ADVANTAGE OF THIS RISING WORLDWIDE DEMAND, HAVING RECORDED RELATIVELY HIGH GROWTH IN EXPORT SALES DURING THE PAST FOUR YEARS. EVEN IN THE FACE OF A WORLDWIDE RECESSION AND SHRINKING WORLD TRADE, U.S. EXPORTS OF PHOTOVOLTAIC CELLS AND MODULES INCREASED BY 52 PERCENT FROM 1981 TO 1982.

IT SHOULD BE EMPHASIZED THAT THESE SALES TOTALS ARE FOR PHOTOVOLTAIC CELLS AND MODULES ONLY, AND THEREFORE UNDERSTATE TOTAL WORLDWIDE DEMAND FOR PHOTOVOLTAIC TECHNOLOGY. TOTAL SALES OF EQUIPMENT AND PRODUCTS USED IN PHOTOVOLTAIC SYSTEMS OR POWERED BY PHOTOVOLTAICS, WHEN ADDED TO CELL/MODULES SALES, WOULD BRING TOTAL IN PHOTOVOLTAIC WORLD TRADE TO AN ESTIMATED $140 TO $150 MILLION IN 1982. MARKET RESEARCH PERFORMED BY INDUSTRY FIRMS ESTIMATE THAT AT THE SAME RATE OF GROWTH, WITH NO FURTHER TECHNOLOGICAL ADVANCEMENTS, TOTAL PHOTOVOLTAIC WORLD TRADE WILL REACH $1-2 BILLION BY 1990. (TECHNOLOGICAL ADVANCEMENTS REDUCING THE COST OF PHOTOVOLTAICS PER PEAK WATT WOULD, IN FACT, INCREASE THE RATE OF GROWTH THROUGH MUCH LARGER VOLUME OF SALES.)

A SIMILAR INCREASE IN WORLD TRADE INVOLVING OTHER RENEWABLE ENERGY TECHNOLOGIES (SOLAR HEATING AND COOLING, WIND, BIOMASS AND SMALL HYDROPOWER) HAS OCCURRED DURING THE PAST SEVERAL YEARS. THERE ARE A NUMBER OF FACTORS FUELING THIS GROWTH, THE MOST IMPORTANT OF WHICH ARE: (1) AN INCREASED FOCUS ON HYDROCARBON SUBSTITUTES TO MEET CURRENT AND FUTURE ENERGY NEEDS OF DEVELOPING COUNTRIES; (2) AN EMPHASIS ON ECONOMIC APPLICATIONS OF RENEWABLE ENERGY TECHNOLOGIES, SPECIFICALLY IN THE WATER RESOURCES, AGRICULTURAL AND ELECTRIC POWER SECTORS; AND (3) INCREASED INVOLVEMENT OF DEVELOPED AND DEVELOPING COUNTRY PRIVATE SECTORS IN COMMERCIAL TECHNOLOGY TRANSFERS, INCLUDING JOINT VENTURE AND LICENSING ARRANGEMENTS, AS WELL AS DIRECT SALES OF EQUIPMENT, PRODUCTS AND SERVICES.

MARKET FORCES AND ECONOMIC FACTORS INVOLVED IN INTERNATIONAL TRADE DETERMINE THE TYPE OF TRANSACTION USED IN INTERNATIONAL COMMERCIALIZATION OF RENEWABLE ENERGY. THERE IS AN INCREASING TREND, APPARENT ESPECIALLY IN MIDDLE INCOME DEVELOPING COUNTRIES, TO CREATE JOINT VENTURE OR LICENSEE RELATIONSHIPS IN ORDER TO TAKE ADVANTAGE OF LOCAL CAPITAL, MARKETING KNOWLEDGE, AND PRIVATE/

PUBLIC SECTOR INCENTIVES FOR RENEWABLE ENERGY RESOURCE DEVELOPMENT. THE IN-COUNTRY OR REGIONAL RESOURCE AND APPLICATIONS DEVELOPMENT CREATE A DEMAND FOR PRODUCTS UTILIZING OR POWERED BY RENEWABLE ENERGY TECHNOLOGIES.

ASSOCIATED WITH THIS TREND IS THE INCREASED EMPHASIS BEING PLACED BY INDIVIDUAL COUNTRIES, REGIONAL COUNTRY GROUPINGS (SUCH AS ASEAN), AND MULTILATERAL DEVELOPMENT BANKS ON ECONOMIC APPLICATIONS OF RENEWABLE ENERGY TECHNOLOGIES IN DEVELOPMENT PROJECTS. SOLAR-POWERED WATER PUMPING FOR IRRIGATION AND POTABLE DRINKING WATER, BIOGASIFICATION SYSTEMS TO PROVIDE POWER FOR PULP AND PAPER AND OTHER LIGHT INDUSTRIES, AND SMALL HYDROPOWER SYSTEMS TO PROVIDE RURAL ELECTRIC POWER ARE ONLY A FEW EXAMPLES OF THE USE OF RENEWABLE ENERGY TECHNOLOGIES IN PROJECTS FUNDED BY THE WORLD BANK, THE ASIAN DEVELOPMENT BANK AND ASEAN. THE INCREASED FOCUS ON APPLICATIONS WILL PROVIDE A POWERFUL STIMULUS TO WORLDWIDE DEMAND FOR RENEWABLE ENERGY GOODS AND SERVICES.

THE COMMERCE DEPARTMENT HAS BEEN SUPPORTING THIS INCREASED OVERSEAS VISIBILITY OF U.S. RENEWABLE ENERGY INDUSTRIES BY AN ACTIVE PROGRAM FORMULATED THROUGH CONSULTATION WITH THE INDUSTRY'S EXPORT COUNCIL FOR RENEWABLE ENERGY AND A COOPERATIVE RELATIONSHIP WITH THE DEPARTMENT OF ENERGY. WE HAVE USED OUR VALUABLE NETWORK OF FOREIGN

COMMERCIAL SERVICE OFFICERS, A MIX OF INNOVATIVE MARKET PROMOTION TECHNIQUES, TIME-TESTED TRADE EVENT MECHANISMS, AND THE RESOURCEFULNESS OF THE PRIVATE SECTOR TO PROMOTE THE EQUIPMENT, PRODUCTS AND SERVICES OF U.S. RENEWABLE ENERGY FIRMS OVERSEAS. IN ADDITION, THE COMMERCE DEPARTMENT HAS ENCOURAGED THOSE RENEWABLE ENERGY FIRMS NOT PRESENTLY ACTIVE IN THE EXPORT MARKET TO SERIOUSLY CONSIDER OVERSEAS SALES OPPORTUNITIES.

IT IS USEFUL TO NOTE THAT A SURVEY PERFORMED FOR THE DEPARTMENT OF ENERGY AND PUBLISHED IN 1980 INDICATED THAT APPROXIMATELY 28 PERCENT OF ALL U.S. RENEWABLE ENERGY FIRMS WERE ACTIVE IN EXPORT MARKETS. THESE ESTIMATES ARE STILL TRUE TODAY. ALTHOUGH THIS IS A HIGHER PROPORTION THAN THE AVERAGE FOR ALL U.S. INDUSTRY, EXPORT SALES BY THOSE RENEWABLE ENERGY FIRMS REPRESENTED ONLY 14 PERCENT OF THE VALUE OF THEIR TOTAL DOMESTIC AND INTERNATIONAL SALES. THIS POINTS OUT, MR. CHAIRMAN, THAT THE VAST MAJORITY OF RENEWABLE ENERGY FIRMS ARE NOT INVOLVED IN EXPORTING AND THAT THE EXPORT MARKET ONLY SUPPLEMENTS DOMESTIC SALES FOR THOSE THAT ARE.

THE COMMERCE DEPARTMENT IS ADDRESSING THIS PARTICULAR ISSUE THROUGH: (1) IDENTIFICATION OF POLICY ISSUES AND MARKETING PROBLEMS WHICH AFFECT THE U.S. RENEWABLE ENERGY INDUSTRY; (2) A PROMOTIONAL CAMPAIGN FOCUSING ON THE ROLE OF EXPORT TRADING COMPANIES IN

ASSISTING SMALL AND NEW-TO-EXPORT FIRMS TO TAKE FULLER ADVANTAGE OF OVERSEAS SALES OPPORTUNITIES; AND (3) AN ACTIVE INDUSTRY/GOVERNMENT PROGRAM OF INFORMATION DISSEMINATION AND EXPORT PROMOTION EVENTS AND ACTIVITIES TO SPOTLIGHT OVERSEAS MARKET OPPORTUNITIES AND INCREASE OVERSEAS AWARENESS OF U.S. COMMERCIAL RENEWABLE ENERGY TECHNOLOGIES.

PROBLEMS INVOLVING RENEWABLE ENERGY EXPORTS

AS WITH MOST NEW AND GROWING INDUSTRIES, THE U.S. RENEWABLE ENERGY INDUSTRIES ARE PRESENTED WITH CERTAIN PROBLEMS IN SUCCESSFULLY COMPETING IN INTERNATIONAL MARKETS:

(1) AVAILABILITY OF AND ACCESS TO STATISTICAL, MARKET AND TRADE INFORMATION;

(2) SCARCITY OF GEOPHYSICAL AND ECONOMIC INFORMATION NECESSARY FOR IDENTIFYING RENEWABLE ENERGY RESOURCES AND APPLICATIONS USING THOSE RESOURCES;

(3) INCREASED INTERNATIONAL COMPETITION AND NONCOMPETITIVE TRADING PRACTICES; AND

(4) ACCESS TO SUFFICIENT FINANCING FOR MARKET DEVELOPMENT AND COMMERCIAL TRANSACTIONS.

THE PROBLEM INVOLVING INFORMATION IS BOTH ONE OF AVAILABILITY AND PRIVATE SECTOR AWARENESS. SINCE THE RENEWABLE ENERGY TECHNOLOGIES HAVE ONLY BEEN COMMERCIALIZED DURING THE PAST 10 YEARS, STATISTICAL, MARKET AND TRADE RESEARCH HAVE NOT QUITE CAUGHT UP. WITH THE EXCEPTION OF PHOTOVOLTAIC CELLS AND WIND ENERGY TURBINES, THERE ARE NO SPECIFIC STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODES ASSIGNED TO RENEWABLE ENERGY PRODUCTS AND SYSTEMS. FOR EXPORT PURPOSES, ONLY PHOTOVOLTAIC CELLS AND SOLAR COLLECTORS HAVE AN ASSIGNED SCHEDULE B (EXPORT) CODE OR (UNITED NATIONS-SPONSORED) STANDARD INTERNATIONAL TRADE CLASSIFICATION (SITC) CODE. AT PRESENT, ALMOST ALL RENEWABLE ENERGY EQUIPMENT, PRODUCTS AND SYSTEMS ARE CLASSIFIED WITH OTHER PRODUCTS WITH SIMILAR APPLICATIONS (FOR EXAMPLE, SOLAR DOMESTIC HOT WATER SYSTEMS ARE CLASSIFIED WITH ALL HEATING AND COOLING SYSTEMS) OR IN GENERAL "NOT ELSEWHERE SPECIFIED CATEGORIES." THIS MAKES IT ALMOST IMPOSSIBLE TO OBTAIN RELIABLE PRODUCTION AND TRADE INFORMATION THROUGH THE CENSUS BUREAU DATA COLLECTION SYSTEM.

RELATED TO THIS PROBLEM IS THE LACK OF TARIFF CLASSIFICATIONS IN MANY DEVELOPING COUNTRIES WHICH ARE NOT SPECIFIC FOR RENEWABLE ENERGY SYSTEMS. THIS CAN BE VERY DISADVANTAGEOUS, SINCE "NOT ELSEWHERE SPECIFIED" CATEGORIES TEND TO HAVE THE HIGHEST IMPORT DUTIES. EVEN WHEN SPECIFIC TARIFF CLASSIFICATIONS EXIST, THEY MAY CONTAIN VAGUE OR INACCURATE TERMINLOGY, RESULTING IN DUTIES THAT ARE EXCESSIVELY HIGH.

INFORMATION REGARDING A NUMBER OF MAJOR MARKET COUNTRIES HAS ONLY RECENTLY BEEN DEVELOPED. MARKET RESEARCH FOR OTHER MAJOR AND POTENTIAL COUNTRY MARKETS IS NOT READILY AVAILABLE. EQUALLY AS SIGNIFICANT, COLLECTION OF INFORMATION ON COUNTRY-SPECIFIC TRADE LAWS, TARIFF AND NON-TARIFF BARRIERS, INCENTIVES AND DISINCENTIVES HAS, IN GENERAL, BEEN SPORADIC. SURVEYS OF GEOPHYSICAL CHARACTERISTICS AND ECONOMIC CRITERIA NECESSARY FOR IDENTIFYING POTENTIAL APPLICATIONS OF RENEWABLE ENERGY TECHNOLOGIES HAVE BEEN LIMITED TO LOCALIZED AREAS IN-COUNTRY AND FOR ONLY A SMALL PROPORTION OF ECONOMIC DEVELOPMENT PROJECTS.

DESPITE RECENT EFFORTS BY BOTH THE COMMERCE DEPARTMENT AND INDUSTRY REPRESENTATIVES, A LARGE PROPORTION OF RENEWABLE ENERGY FIRMS REMAIN UNAWARE OF THE LIMITED MARKET, TRADE AND STATISTICAL INFORMATION WHICH _IS_ AVAILABLE.

BEYOND THE PROBLEMS OF INFORMATION COLLECTION AND DISSEMINATION, ARE DIFFICULTIES INHERENTLY ASSOCIATED WITH INTERNATIONAL MARKETING EFFORTS OF YOUNG INDUSTRIES. SINCE MOST RENEWABLE ENERGY TECHNOLOGIES ARE RELATIVELY NEW, WITH ONLY A LIMITED TRACK RECORD, ACCESS OF U.S. FIRMS TO SUFFICIENT FINANCING FOR MARKET DEVELOPMENT AND COMMERCIAL TRANSACTIONS IS NOT ALWAYS READILY AVAILABLE. THE RELATIVELY HIGH RISK AND MODERATE RATE OF RETURN ON INVESTMENT ACT AS A BRAKE IN OBTAINING CAPITAL FOR COMMERCIAL PURPOSES.

COMPOUNDING THIS PROBLEM IS THE INCREASED COMPETITION IN THE INTERNATIONAL MARKET PLACE FOR RENEWABLE ENERGY SALES OPPORTUNITIES. JAPAN, FRANCE, GERMANY, DENMARK AND GREAT BRITAIN HAVE BEGUN TO AGGRESSIVELY DEVELOP OVERSEAS MARKETS FOR THEIR OWN RENEWABLE ENERGY INDUSTRIES. ALLEGATIONS OF NON-COMPETITIVE TRADING PRACTICES, AS WELL AS DIRECT GOVERNMENT SUPPORT FOR RESEARCH AND MARKET DEVELOPMENT OF RENEWABLE ENERGY TECHNOLOGIES BY THESE COUNTRIES HAVE BEEN PUBLICIZED BY THE U.S. INDUSTRY DURING THE PAST TWO YEARS. INDUSTRY REPRESENTATIVES HAVE BECOME CONCERNED ABOUT AN EROSION IN THE TECHNOLOGICAL AND MARKET LEAD HISTORICALLY POSSESSED BY THE U.S. IN RENEWABLE ENERGY TECHNOLOGY.

CRITICAL AREAS AFFECTING INTERNATIONAL MARKETING OF U.S. RENEWABLE ENERGY TECHNOLOGIES

THERE ARE A NUMBER OF CRITICAL AREAS WHICH AFFECT INTERNATIONAL MARKETING OF U.S. RENEWABLE ENERGY TECHNOLOGIES. ALTHOUGH CERTAINLY NOT INSURMOUNTABLE, THESE AREAS PRESENT IMPEDIMENTS TO SUCCESSFUL MARKETING.

IN GENERAL, THE MAJOR OVERSEAS MARKETS FOR RENEWABLE ENERGY TECHNOLOGIES ARE LOCATED IN THE DEVELOPING COUNTRIES. MANY OF THESE COUNTRIES HAVE ESTABLISHED COMMERCIAL RELATIONSHIPS WITH EUROPEAN OR JAPANESE FIRMS DATING BACK TO THE EARLY 1900'S. BREAKING INTO THE

NETWORK IS OFTEN A VERY DIFFICULT TASK. A COROLLARY TO THIS IS THE LACK OF AWARENESS OF PUBLIC AND PRIVATE SECTOR OFFICIALS, MANY OF WHOM ARE POTENTIAL FOREIGN BUYERS OF U.S. RENEWABLE ENERGY TECHNOLOGY, EQUIPMENT AND SYSTEMS. EVEN WHEN THE POTENTIAL BUYER IS AWARE OF THE PARTICULAR SYSTEM OR EQUIPMENT, IT IS DIFFICULT FOR HIM TO IDENTIFY AND LOCATE THE U.S. PRODUCERS OR SELLERS OF SUCH PRODUCTS.

THE ESTABLISHMENT OF INTERNATIONAL STANDARDS FOR RENEWABLE ENERGY PRODUCTS AND SYSTEMS IS ANOTHER CRITICAL AREA. AS WITH ALL NEW TECHNOLOGIES, INTERNATIONAL PRODUCT STANDARDS NOW BEING ESTABLISHED ARE EXPECTED TO BE ACCEPTED BY MOST DEVELOPING COUNTRIES SEEKING TO DEVELOP THEIR RENEWABLE ENERGY RESOURCES. RECOGNIZING THAT ENTRY INTO A MARKET MAY DEPEND ON THE INTERNATIONALLY AGREED STANDARDS, COMPETITOR COUNTRIES HAVE BEEN ACTIVELY SEEKING TO INFLUENCE THE CONTENTS OF THESE STANDARDS. DESPITE THE U.S. TECHNOLOGICAL LEAD, U.S. INDUSTRY REPRESENTATIVES HAVE STRESSED THAT THE GOVERNMENTAL SUPPORT RECEIVED BY THE PRIVATE SECTOR IN COMPETITOR COUNTRIES MAY RESULT IN INTERNATIONAL STANDARDS FAVORABLE TO THESE COUNTRIES.

SIMILARLY, THE U.S. INDUSTRY VIEWS THE PUBLIC SECTOR SUPPORT BY THESE COMPETITOR COUNTRIES OF DEVELOPMENT PROJECT FEASIBILITY STUDIES INVOLVING APPLICATIONS OF RENEWABLE ENERGY TECHNOLOGIES AS A

CRITICAL AREA AFFECTING INTERNATIONAL MARKETING. THE FEASIBILITY STUDY, REQUIRED FOR MOST PROJECTS, ESTABLISHES THE SPECIFICATIONS FOR THE EQUIPMENT AND SYSTEMS TO BE PURCHASED FOR THE PROJECT. SINCE THESE PROJECTS ARE TYPICALLY IN DEVELOPING COUNTRIES BURDENED WITH DEBT PAYMENTS OR LIMITED FINANCIAL RESOURCES OBTAINING FUNDING FOR FEASIBILITY STUDIES IS DIFFICULT AT BEST. THE IMPORTANCE OF OBTAINING U.S. (PUBLIC OR PRIVATE SECTOR) FUNDING FOR PROJECT FEASIBILITY STUDIES LIES IN THE ROLE THESE PROJECTS PLAY IN DEMONSTRATING THE ECONOMIC USE OF RENEWABLE ENERGY TECHNOLOGIES. ONCE THIS IS DEMONSTRATED, THE PROJECT BECOMES AN IMPORTANT MARKETING TOOL WITHIN THAT COUNTRY FOR THE PRODUCER OF THE PARTICULAR EQUIPMENT.

DEPARTMENT OF COMMERCE EFFORTS TO ADDRESS PROBLEMS AND CRITICAL AREAS AFFECTING RENEWABLE ENERGY EXPORTS

1. COMPETITIVE ASSESSMENT

ITA'S RECENT TRADE DEVELOPMENT REORGANIZATION HAS ENABLED US TO RESTRUCTURE OUR RESOURCES IN ORDER TO MORE EFFECTIVELY DETERMINE THE MAJOR PROBLEMS, ISSUES AND OPPORTUNITIES AFFECTING U.S. INDUSTRY PARTICIPATION IN WORLD TRADE. DURING THE NEXT YEAR, OUR INDUSTRY SPECIALISTS WILL BE PERFORMING COMPETITIVE ASSESSMENTS OF THEIR

ASSIGNED INDUSTRY SECTORS. AS A RESULT OF THE GROWING IMPORTANCE OF RENEWABLE ENERGY EQUIPMENT, PRODUCTS AND SERVICES IN DEVELOPING COUNTRY MARKETS, A COMPETITIVE ASSESSMENT OF THIS EMERGING INDUSTRY SECTOR WILL BE AMONG THE FIRST GROUP OF STUDIES TO BE PERFORMED. WE EXPECT TO COMPLETE THIS COMPETITIVE ASSESSMENT OF U.S. RENEWABLE ENERGY TECHNOLOGIES BY LATE SUMMER 1984.

TWO PRELIMINARY STEPS HAVE ALREADY BEEN TAKEN. FOLLOWING CONSULTATIONS WITH THE DEPARTMENT OF ENERGY, WE HAVE RECENTLY ISSUED A GRANT TO THE U.S. EXPORT COUNCIL FOR RENEWABLE ENERGY FOR A STUDY OF THE POLICIES AND PROGRAMS OF FIVE COMPETITOR NATIONS WHICH AFFECT INTERNATIONAL RENEWABLE ENERGY TRADE. THIS STUDY, WHICH IS INCLUDED IN OUR JOINT PROGRAM WITH THE DEPARTMENT OF ENERGY, WILL INCLUDE AN ANALYSIS OF SPECIFIC COMMERCIAL TRANSACTIONS OF COMPETITOR NATION FIRMS IN ORDER TO DETERMINE HOW THESE POLICIES AND PROGRAMS AFFECT THEIR INTERNATIONAL MARKETING ACTIVITIES. INFORMATION AND DATA FROM THIS STUDY WILL BE INCORPORATED AS APPROPRIATE INTO THE ITA COMPETITIVE ASSESSMENT FOR THIS INDUSTRY SECTOR.

AS A SECOND STEP, WE ARE PLANNING TO HOLD A CONFERENCE INVOLVING THE REPRESENTATIVES OF U.S. RENEWABLE FIRMS, INDUSTRY TRADE ASSOCIATIONS, GOVERNMENT AGENCIES AND INSTITUTIONS TO IDENTIFY THE PROBLEMS AND CONCERNS OF THE RENEWABLE ENERGY INDUSTRY IN THE

INTERNATIONAL MARKETING OF ITS EQUIPMENT, PRODUCTS AND SERVICES. THIS CONFERENCE WILL DEFINE BASIC OBSTACLES AND OPPORTUNITIES FOR INCREASED INDUSTRY COMPETITIVENESS IN THE WORLD MARKETPLACE.

2. EXPORT PROMOTION

THROUGH COOPERATION WITH THE U.S EXPORT COUNCIL FOR RENEWABLE ENERGY, ITS COMPONENT TRADE ASSOCIATION MEMBERS, AND SEVERAL OTHER U.S. GOVERNMENT AGENCIES, THE COMMERCE DEPARTMENT HAS BEEN ABLE TO INCREASE THE ACCESS OF U.S. FIRMS TO OVERSEAS MARKETING OPPORTUNITIES. USING THE RESOURCES OF THE INTERNATIONAL TRADE ADMINISTRATION, MAJOR SEGMENTS OF THE RENEWABLE ENERGY EXPORT DEVELOPMENT PLAN OF ACTION HAVE BEEN IMPLEMENTED.

A KEY ASPECT OF OUR EFFORTS HAS BEEN THE JOINT INDUSTRY/ GOVERNMENT APPROACH TO EXPORT PROMOTION OF RENEWABLE ENERGY. THIS APPROACH IS BASED ON AN INTERAGENCY AGREEMENT WITH THE DEPARTMENT OF

ENERGY TO SUPPORT EVENTS AND ACTIVITIES INVOLVING THE EXPORT DEVELOPMENT OF RENEWABLE ENERGY TECHNOLOGIES. UNDER THIS APPROACH BEGUN IN THE FALL OF 1982, COSTS INVOLVED IN SELECTED OVERSEAS TRADE EVENTS ARE SHARED BY THE PARTICIPATING U.S. FIRMS AND THE GOVERNMENT. THIS JOINT INDUSTRY/GOVERNMENT APPROACH HAS BEEN PUBLICIZED THROUGH THE RENEWABLE ENERGY INDUSTRY MEDIA, COMMERCE DEPARTMENT PUBLICATIONS, AND NOTICES TO THE 2,600 U.S. RENEWABLE ENERGY FIRMS IN ITA'S DATA BASE/MAILING LIST.

THE EFFECT OF THIS APPROACH IS TO ENABLE THOSE RENEWABLE ENERGY FIRMS WITH LIMITED FINANCIAL RESOURCES TO PARTICIPATE IN OVERSEAS TRADE EVENTS SPONSORED BY THE COMMERCE DEPARTMENT. A NUMBER OF VERY SUCCESSFUL TRADE EVENTS FOCUSING ON RENEWABLE ENERGY HAVE BEEN HELD DURING THE PAST YEAR WHICH HAS UTILIZED THIS APPROACH. IN NOVEMBER 1982, ITA SPONSORED AN ALTERNATE ENERGY SEMINAR TRADE MISSION TO THREE SOUTHEAST ASIAN COUNTRIES, COMPOSED OF REPRESENTATIVES FROM SEVEN RENEWABLE ENERGY FIRMS. SEVERAL RENEWABLE ENERGY FIRMS PARTICIPATED IN TWO ELECTRIC POWER TRADE MISSIONS, ONE TO THE MIDDLE EAST IN JANUARY 1983 AND THE OTHER TO PAKISTAN AND TWO COUNTRIES IN SOUTHEAST ASIA. IN APRIL 1983, 20 U.S. FIRMS EXHIBITED IN A U.S. RENEWABLE ENERGY PAVILION AT HAMBURG ENERGY '83 INTERNATIONAL EXPOSITION.

IN MAY 1983, 60 RENEWABLE ENERGY FIRMS DISPLAYED THEIR PRODUCT LITERATURE AT A CATALOG EXHIBITION IN THE CYPRUS INTERNATIONAL TRADE FAIR. (IT IS INTERESTING TO NOTE THAT THE VAST MAJORITY OF FIRMS PARTICIPATING IN THIS EVENT WERE EITHER SMALL, NEW-TO-EXPORT OR NEW-TO-MARKET COMPANIES). IN SEPTEMBER 1983, 15 U.S. RENEWABLE ENERGY FIRMS PROMOTED THEIR PRODUCTS, SYSTEMS AND TECHNOLOGY IN THE U.S. PAVILION AT THE SINGAPORE ASIAN ENERGY '83 INTERNATIONAL EXPOSITION.

FOUR ADDITIONAL ACTIVITIES PLANNED OR CARRIED OUT UNDER THIS JOINT INDUSTRY/GOVERNMENT APPROACH STAND OUT IN PARTICULAR AS EXAMPLES FOR INNOVATIVE EXPORT PROMOTION TECHNIQUES. ON JUNE 15-16, 1983, THE COMMERCE DEPARTMENT CO-SPONSORED (ALONG WITH THE AGENCY FOR INTERNATIONAL DEVELOPMENT AND THE GOVERNMENT OF ITALY) A SEMINAR/WORKSHOP ON RENEWABLE ENERGY DEVELOPMENT IN NAIROBI, KENYA. THE LAST IN A SERIES OF FOUR SEMINARS/WORKSHOPS SPONSORED BY THE INTERNATIONAL INSTITUTE FOR ENVIRONMENT AND DEVELOPMENT (IIED), THE NAIROBI EVENT INCLUDED FOUR U.S. RENEWABLE ENERGY FIRMS. DISCUSSIONS AT THE SEMINAR/WORKSHOP FOCUSED ON EXPLORING THE ROLE OF THE PRIVATE SECTOR IN DEVELOPING KENYA'S RENEWABLE ENERGY RESOURCES, PRIMARILY THROUGH COMMERCIAL TRANSACTIONS.

USING A REVERSE TRADE MISION APPROACH, THE DEPARTMENTS OF COMMERCE, ENERGY AND STATE JOINTLY INVITED HIGH LEVEL GOVERNMENT ENERGY OFFICIALS FROM 20 TARGETED COUNTRIES TO PARTICIPATE IN AND ATTEND THE AUGUST 1983 RENEWABLE ENERGY TECHNOLOGIES SYMPOSIUM AND INTERNATIONAL EXPOSITION IN ANAHEIM, CALIFORNIA. FORTY OF THESE OFFICIALS FROM 18 COUNTRIES EVENTUALLY ATTENDED THIS EVENT. THE PURPOSE OF THIS UNIQUE AND HIGHLY SUCCESSFUL EFFORT WAS TO INCREASE FOREIGN PUBLIC SECTOR AWARENESS OF COMMERCIAL RENEWABLE ENERGY EQUIPMENT, PRODUCTS AND SERVICES AND TO ENCOURAGE CONTACT WITH U.S. FIRMS. A MAJOR HIGHLIGHT OF THIS EVENT WAS A SYMPOSIUM WORKSHOP FEATURING ROUNDTABLE DISCUSSIONS BETWEEN THESE GOVERNMENT OFFICIALS AND REPRESENTATIVES OF U.S. COMPANIES EXHIBITING AT OR ATTENDING THE SHOW.

IN NOVEMBER 1983, THE SAME THREE DEPARTMENTS JOINED FORCES TO SEND A U.S. PRIVATE SECTOR DELEGATION TO A SYMPOSIUM ON WIND FARM DEVELOPMENT SPONSORED BY THE GOVERNMENT OF SPAIN. ORGANIZED AND LED BY THE AMERICAN WIND ENERGY ASSOCIATION, THE SIX COMPANY DELEGATION PROMOTED THE CONCEPT OF PRIVATE SECTOR DEVELOPMENT OF WIND ENERGY RESOURCES AS A VIABLE ALTERNATIVE TO CONTINUED RELIANCE ON IMPORTED FOSSIL FUELS TO MEET SPAIN'S ENERGY NEEDS. FOLLOW-UP ACTION FOR COMMERCIAL PROJECTS IN SPAIN IS PLANNED BY THIS GROUP.

IN THE FALL OF 1983, ITA COMPLETED PRODUCTION AND BEGAN SCREENINGS OF A VIDEO TAPE FEATURING THE PRODUCTS, EQUIPMENT, OR SYSTEMS OF 18 U.S. RENEWABLE ENERGY FIRMS REPRESENTING FIVE SEPARATE TECHNOLOGIES. EACH OF THE 18 COMPANY SEGMENTS CONTAIN VIDEO-TAPED SHOTS OF THE FEATURED PRODUCT OR SYSTEM ACTUALLY IN OPERATION IN VARIOUS SITES ACROSS THE U.S., WITH A VOICE-OVER NARRATIVE AND SOUND TRACK. THIS WILL ENABLE THE VIEWER TO VISUALIZE THE PRODUCT OR SYSTEM, AS WELL AS ITS SPECIFIC APPLICATIONS. LITERATURE FURNISHED BY THE COMPANY WILL PROVIDE THE VIEWER WITH SPECIFIC DETAILS AND OTHER INFORMATION. BY SIMULTANEOUSLY CIRCULATING 15 COPIES, AND TRANSLATING THE TAPE INTO SEVERAL LANGUAGES, FOREIGN COMMERCIAL SERVICE POSTS WILL BE ABLE TO SCREEN THE TAPE FOR A SELECTED AUDIENCE OF PUBLIC AND PRIVATE SECTOR OFFICIALS IN APPROXIMATELY 40 DEVELOPING COUNTRIES DURING FY '84 AND AN ADDITIONAL 25 COUNTRIES IN FY '85.

THE EFFECT ON RENEWABLE ENERGY EQUIPMENT AND PRODUCT EXPORTS FROM ALL THE EVENTS HELD SO FAR UNDER THIS JOINT INDUSTRY/GOVERNMENT APPROACH IS IMPRESSIVE. ACTUAL AND PROJECTED SALES RESULTING FROM THE PARTICIPATION OF U.S. FIRMS IN THESE EVENTS TOTAL $14.6 MILLION THROUGH DECEMBER 1983, AT A COST TO THE U.S. GOVERNMENT OF APPROXIMATELY $187,000.

THE MAJOR PURPOSE OF ITA'S TRADE EVENTS IS TO INCREASE THE PROFILE OF U.S. RENEWABLE ENERGY TECHNOLOGIES OVERSEAS AND EXPOSE U.S. FIRMS TO INTERNATIONAL MARKETING OPPORTUNITIES. THE EVENTS PROVIDE AN OPPORTUNITY FOR PURCHASER AND SELLER TO MEET. EQUALLY AS IMPORTANT, THEY PROVIDE THE U.S. FIRMS WITH THE OPPORTUNITY OF ESTABLISHING MARKETING CONTACTS WITH POTENTIAL AGENTS OR DISTRIBUTORS. IT IS THESE INDIVIDUALS WHO ACT AS THE FIRM'S REPRESENTATIVES IN SEEKING SALES OPPORTUNITIES AND IN PROMOTING THE FIRM'S PRODUCTS AND SYSTEMS IN-COUNTRY.

THE COMMERCE DEPARTMENT OFFERS PROGRAMS SPECIFICALLY TARGETED AT THESE INDIVIDUALS. UNDER ITA'S TRADE FAIR CERTIFICATION PROGRAM, DOMESTIC AND OVERSEAS TRADE SHOWS ARE PROMOTED TO AGENTS, DISTRIBUTORS, END-USERS AND OTHER FOREIGN BUYERS BY COMMERCIAL OFFICERS AND THEIR STAFF AT DIPLOMATIC POSTS AROUND THE WORLD. FOREIGN BUYERS ARE ENCOURAGED TO ATTEND THESE TRADE SHOWS TO INCREASE CONTACTS WITH U.S. FIRMS.

DURING THE PERIOD MAY 1982 THROUGH MARCH 1984, SIX DOMESTIC TRADE SHOWS FEATURING RENEWABLE ENERGY TECHNOLOGIES WILL HAVE BEEN PROMOTED OVERSEAS. THIS UNPRECEDENTED NUMBER OF FOREIGN BUYER EVENTS FOR AN INDUSTRY INCLUDES A SOLAR EXPOSITION IN HOUSTON, AN ENERGY TECHNOLOGIES EXPOSITION IN WASHINGTON, D.C., AND A

WOOD-HEATING SHOW IN BALTIMORE. OUR EFFORTS ACHIEVED THEIR GREATEST SUCCESS IN THE RENEWABLE ENERGY SYMPOSIUM AND INTERNATIONAL EXPOSITION, HELD IN ANAHEIM, CALIFORNIA AT THE END OF AUGUST 1983. THIS WAS THE LARGEST AND MOST VARIED EXHIBITION OF RENEWABLE ENERGY EQUIPMENT, PRODUCTS AND SERVICES EVER HELD IN THE U.S. OR OVERSEAS, ATTRACTING A RECORD 5,500 DOMESTIC AND INTERNATIONAL VISITORS.

AN ADDITIONAL FEATURE OF TRADE FAIR CERTIFICATION SHOWS IS THE COMPILATION AND DISTRIBUTION OF AN EXHIBITORS DIRECTORY. THE DIRECTORY CONTAINS THE NAME, ADDRESS, DESCRIPTION OF PRODUCT/SYSTEM/ SERVICES AND TYPES OF COMMERCIAL TRANSACTIONS DESIRED OF EACH EXHIBITION INTERESTED IN OVERSEAS SALES. COPIES OF THE DIRECTORY ARE SENT TO COMMERCIAL SERVICE POSTS AROUND THE WORLD FOR DISTRIBUTION TO INTERESTED FOREIGN BUYERS. COPIES OF THE DIRECTORY ARE ALSO DISTRIBUTED BY OUR INDUSTRY SPECIALISTS AT THE TRADE SHOWS.

IN A FURTHER EFFORT TO INCREASE OVERSEAS AWARENESS OF U.S. RENEWABLE ENERGY FIRMS AND THEIR EQUIPMENT, PRODUCTS AND SERVICES, ITA AND DOE PLAN TO ASSIST THE EXPORT COUNCIL FOR RENEWABLE ENERGY IN PUBLISHING AND DISTRIBUTING A RENEWABLE ENERGY PRIMER. THIS PUBLICATION WILL INCLUDE EQUIPMENT/PRODUCT SPECIFICATIONS AND APPLICATIONS PROVIDED BY U.S. FIRMS, AND WILL BE SENT TO U.S. DIPLOMATIC POSTS, CHAMBERS OF COMMERCE, AND PROFESSIONAL TRADE ASSOCIATIONS AROUND THE WORLD FOR USE AS A PRIMARY RESOURCE SOURCE.

FINALLY, ITA OFFERS BUSINESS COUNSELING ON INTERNATIONAL MARKETING TO INDIVIDUAL U.S. FIRMS. THE COUNSELING CAN BE PROVIDED BY U.S. COMMERCIAL DISTRICT OFFICE TRADE SPECIALISTS, AS WELL AS BY INDUSTRY SPECIALISTS AND COUNTRY DESK OFFICERS.

3. MARKET RESEARCH

TO MEET THE NEED FOR CURRENT MARKET INFORMATION ON SPECIFIC COUNTRIES BY U.S. FIRMS, THE COMMERCE DEPARTMENT CONDUCTS AND DISTRIBUTES MARKET RESEARCH BRIEFS ON IDENTIFIED SECTORS. IN ADDITION, THE DEPARTMENT DISTRIBUTES MARKET RESEARCH SUMMARIES ON SPECIFIC COUNTRIES WHERE TRADE EVENTS ARE LOCATED TO ASSIST IN U.S. FIRMS IN IDENTIFYING MARKET OPPORTUNITIES.

SINCE RENEWABLE ENERGY TECHNOLOGIES HAVE ONLY BEEN RECENTLY COMMERCIALIZED, THE COMMERCE DEPARTMENT DOES NOT HAVE COMPREHENSIVE MARKET RESEARCH ON THIS INDUSTRY. HOWEVER, AS OUR FOREIGN COMMERCIAL SERVICE OFFICERS HAVE BECOME FAMILIAR WITH THE TECHNOLOGIES, AN INCREASING NUMBER OF CABLES CONTAINING COUNTRY-SPECIFIC INFORMATION ON THE MARKET FOR RENEWABLE ENERGY PRODUCTS AND SYSTEMS HAS BECOME AVAILABLE. THIS INFORMATION HAS BEEN DISSEMINATED TO INTERESTED U.S. FIRMS.

AT THE REQUEST OF THE EXPORT COUNCIL FOR RENEWABLE ENERGY, THE COMMERCE DEPARTMENT, THROUGH ITS FOREIGN COMMERCIAL SERVICE OFFICERS, ASSISTED THE RENEWABLE ENERGY INSTITUTE (REI) IN OBTAINING SPECIFIC TRADE LAW INFORMATION INVOLVING RENEWABLE ENERGY. THIS COUNTRY-SPECIFIC INFORMATION WILL BE DISSEMINATED BY REI TO INDUSTRY FIRMS IN THE FORM OF TRADE LAW STUDIES FOR FIVE COUNTRIES. THE DEPARTMENT IS PLANNING TO PRODUCE ADDITIONAL TRADE LAW STUDIES DURING THE NEXT TWO YEARS UNDER AN EXTENSION OF THE DOC/DOE INTERAGENCY AGREEMENT ON EXPORT PROMOTION OF RENEWABLE ENERGY.

SIMILAR TO MARKET RESEARCH, THE DEPARTMENT RECOGNIZES THE NEED FOR RELIABLE PRODUCTION AND TRADE STATISTICS INVOLVING RENEWABLE ENERGY PRODUCTS, SYSTEMS AND EQUIPMENT. AS A FIRST STEP, ITA HAS DISCUSSED WITH INDUSTRY OFFICIALS WAYS OF OBTAINING APPROPRIATE STANDARD INDUSTRIAL CLASSIFICATION (SIC), SCHEDULE B, AND SCHEDULE E (EXPORT) CODES FOR RENEWABLE ENERGY PRODUCTS AND SYSTEMS. THE EXPORT COUNCIL FOR RENEWABLE ENERGY HAS BEEN IN CONTACT WITH THE APPROPRIATE COMMERCE DEPARTMENT AGENCY, THE CENSUS BUREAU, TO DETERMINE THE PROCEDURES FOR ESTABLISHING ADDITIONAL PRODUCT

CATEGORIES. ITA WILL PROVIDE SUPPORT AND GUIDANCE FOR THE NECESSARY RESEARCH TO IDENTIFY AND CATEGORIZE VARIOUS RENEWABLE ENERGY EQUIPMENT AND PRODUCT CLASSIFICATIONS TO BE ADDED TO THESE CODES. ONCE THE NEW CLASSIFICATIONS ARE ESTABLISHED, THE CENSUS BUREAU AND THE STATE DEPARTMENT WILL BE REQUESTED TO PRESENT THESE CLASSIFICATIONS TO THE APPROPRIATE UNITED NATIONS ORGANIZATION FOR CORRELATION WITH THE STANDARD INTERNATIONAL TRADE CLASSIFICATION (SITC) CODE. DATA FROM THESE CODES WILL PROVIDE THE BASE FOR STATISTICAL ANALYSIS AND TRENDING USEFUL IN MARKET DEVELOPMENT PLANNING.

5. GEOPHYSICAL/ECONOMIC SURVEYS AND PROJECT FEASIBILITY STUDIES

ITA RECOGNIZES THE NEED FOR GEOPHYSICAL/ECONOMIC SURVEYS TO DETERMINE POTENTIAL APPLICATIONS OF RENEWABLE ENERGY IN DEVELOPING COUNTRIES, AND THE ROLE PLAYED BY PROJECT FEASIBILITY STUDIES IN THE COMMERCIALIZATION OF RENEWABLE ENERGY TECHNOLOGIES. INDUSTRY

REPRESENTATIVES HAVE BEEN ADVISED TO DISCUSS THESE ISSUES WITH THE APPROPRIATE U.S. GOVERNMENT AGENCIES, I.E., THE AGENCY FOR INTERNATIONAL DEVELOPMENT REGARDING THE SURVEYS, AND THE TRADE DEVELOPMENT PROGRAM (TDP) OF THE INTERNATIONAL DEVELOPMENT COOPERATION AGENCY REGARDING THE FEASIBILITY STUDIES.

HOWEVER, THIS DOES NOT PRECLUDE ITA/TDP COOPERATION IN THIS AREA. ITA, DOE AND INDUSTRY OFFICIALS WILL BE PURSUING COOPERATIVE EFFORTS WITH TDP TO UTILIZE ITS FEASIBILITY STUDY PROGRAM FOR WIND RESOURCE ASSESSMENTS IN MAJOR MARKET COUNTRIES.

6. INTERNATIONAL PRODUCT STANDARDS

ITA RECOGNIZES THE RELATIONSHIP BETWEEN THE ESTABLISHMENT OF INTERNATIONAL PRODUCT STANDARDS AND THE INTERNATIONAL MARKETING OF RENEWABLE ENERGY PRODUCTS, SYSTEMS AND EQUIPMENT. GIVEN THE U.S. TECHNOLOGICAL LEAD IN RENEWABLE ENERGY TECHNOLOGIES, WE BELIEVE AN INDUSTRY/GOVERNMENT COOPERATIVE APPROACH COULD PROMOTE THE WORLDWIDE ACCEPTANCE OF U.S. STANDARDS FOR THESE TECHNOLOGIES. WE HAVE ADVISED INDUSTRY REPRESENTATIVES TO DISCUSS THIS MATTER WITH THE APPROPRIATE COMMERCE DEPARTMENT AGENCY, THE NATIONAL BUREAU OF STANDARDS. IN ADDITION, WE HAVE CONSULTED WITH THE DEPARTMENT OF ENERGY ON INITIATING A JOINT PROGRAM OF ACTIVITIES DESIGNED TO SUPPORT U.S. PRIVATE SECTOR EFFORTS IN THE ESTABLISHMENT OF INTERNATIONAL RENEWABLE ENERGY STANDARDS.

7. ACCESS TO FINANCING FOR INTERNATIONAL TRANSACTIONS

SIMILAR TO FIRMS IN OTHER INDUSTRIES WITH RELATIVELY NEW TECHNOLOGIES, RENEWABLE ENERGY FIRMS HAVE EXPERIENCED DIFFICULTY IN FINANCING INTERNATIONAL MARKET DEVELOPMENT AND EXPORT SALES. THIS DIFFICULTY HAS BEEN COMPOUNDED BY HIGH INTEREST RATES IN THE U.S. AND SCARCITY OF PUBLIC AND PRIVATE SECTOR CAPITAL IN DEVELOPING COUNTRIES DURING THE PAST SEVERAL YEARS, WHICH HAS MADE EXPORT SALES HARDER TO MAKE BY REASON OF HIGHER FINANCING COSTS.

THE LOAN GUARANTEE PROGRAM OFFERED BY THE EXPORT-IMPORT BANK AND THE SMALL BUSINESS ADMINISTRATION ARE IMPORTANT IN FINANCING EXPORT TRANSACTIONS. IN OUR OWN EFFORTS TO PROMOTE EXPORT TRADING COMPANIES, THE DEPARTMENT OF COMMERCE HAS BEEN ADVISING U.S. FIRMS ABOUT THE EXPORT-IMPORT BANK'S NEW EXPORT TRADING COMPANY LOAN GUARANTEE PROGRAM. FOR THE FIRST TIME, THIS PROGRAM ALLOWS EXIM TO GUARANTEE LOANS TO U.S. EXPORTERS. IT IS AVAILABLE TO ANY EXPORTER, NOT JUST EXPORT TRADING COMPANIES. THE COMMERCE DEPARTMENT BELIEVES THAT THE EXPORT-IMPORT BANK WILL GIVE APPROPRIATE CONSIDERATION FOR LOANS AND LOAN GUARANTEES TO RENEWABLE ENERGY FIRMS WHICH MEET THE NECESSARY FINANCIAL CRITERIA.

HOWEVER, THE PRIMARY SOLUTION TO THE FINANCING DIFFICULTIES EXPERIENCED BY U.S. RENEWABLE ENERGY FIRMS RESIDES WITH THE PRIVATE SECTOR IN THE MARKETPLACE. WE BELIEVE THAT A GROWING ECONOMIC RECOVERY WITH LOW INFLATION, FOSTERED BY THE ADMINISTRATION'S ECONOMIC POLICIES, WILL RESULT IN LOWER REAL INTEREST RATES. AN EXPANDING U.S. ECONOMY, COMBINED WITH THE TAX REDUCTIONS AND TAX INCENTIVES ENACTED IN THE ECONOMIC RECOVERY ACT OF 1981, WILL RESULT IN INCREASED AVAILABILITY OF CAPITAL FOR FINANCING MARKET DEVELOPMENT AND INTERNATIONAL COMMERCIAL TRANSACTIONS. SIMILARLY, WITH THE U.S. ECONOMY LEADING A WORLDWIDE ECONOMIC RECOVERY, SUFFICIENT PUBLIC AND PRIVATE CAPITAL WILL BE AVAILABLE OVERSEAS FOR COMMERCIAL TRANSACTIONS INVOLVING RENEWABLE ENERGY RESOURCE DEVELOPMENT.

THE COMMERCE DEPARTMENT BELIEVES THAT A PRIME SOURCE FOR PRIVATE SECTOR CAPITAL FOR INTERNATIONAL COMMERCIAL TRANSACTIONS BY SMALL, NEW-TO-MARKET FIRMS WILL BE THE EXPORT TRADING COMPANIES FORMED AS A RESULT OF RECENTLY ENACTED LEGISLATION. THESE EXPORT TRADING COMPANIES COULD PROVIDE BOTH THE EXPERTISE AND FINANCING FOR MARKET DEVELOPMENT AND PROMOTION OF RENEWABLE ENERGY TECHNOLOGIES.

AS RENEWABLE ENERGY TECHNOLOGIES CONTINUE TO DEVELOP SUCCESSFUL TRACK RECORDS AND DECREASE ENERGY COSTS DURING THE NEXT SEVERAL

YEARS. THE HIGH RISK CURRENTLY ASSOCIATED WITH INTERNATIONAL TRANSACTIONS INVOLVING RENEWABLE ENERGY WILL SIGNIFICANTLY DECREASE. THIS IN ITSELF WILL EASE FINANCING PROBLEMS EXPERIENCED BY RENEWABLE ENERGY FIRMS.

INTERAGENCY COOPERATION

THE COMMERCE DEPARTMENT HAS SUPPORTED AND CONTINUES TO SUPPORT INTERAGENCY COOPERATION, AND ENDORSES ALL EFFORTS TO FACILITATE THAT COOPERATION. THE DEPARTMENT BELIEVES INTERAGENCY COOPERATION IS ESSENTIAL TO THE COORDINATION AND EFFICIENT ADMINISTRATION OF FEDERAL GOVERNMENT POLICIES. THIS IS ESPECIALLY TRUE FOR THE MANY GOVERNMENT PROGRAMS AFFECTING INTERNATIONAL MARKETING OF U.S. GOODS AND SERVICES, INCLUDING THOSE ASSOCIATED WITH RENEWABLE ENERGY TECHNOLOGIES. ITA'S RECENT EXPERIENCE WITH THE INTERAGENCY WORKING GROUP ON INTERNATIONAL ENERGY RESEARCH, DEVELOPMENT AND DEMONSTRATION HAS CONVINCED US THAT SUCH GROUPS PROVIDE AN EFFECTIVE MECHANISM FOR ACHIEVING INTERAGENCY COOPERATION. EACH PARTICIPATING AGENCY BENEFITS THROUGH INCREASED KNOWLEDGE OF INTERCONNECTING PROGRAMS. THIS PARTICULAR WORKING GROUP, HEADED BY THE STATE DEPARTMENT, HAS BEEN HELPFUL TO US IN TARGETING RENEWABLE ENERGY EXPORT DEVELOPMENT ACTIVITIES.

ITA HAS ESTABLISHED CLOSE AND VERY EFFECTIVE WORKING RELATIONSHIPS WITH BOTH THE DEPARTMENTS OF ENERGY AND STATE AS A RESULT OF OUR EFFORTS TO ENCOURAGE RENEWABLE ENERGY PRIVATE SECTOR ACTIVITIES IN INTERNATIONAL MARKETS. IN FACT, MR. CHAIRMAN, A MAJOR PORTION OF OUR SUCCESS IN PROMOTING RENEWABLE ENERGY TECHNOLOGIES IN OVERSEAS MARKETS IS DUE TO THE SUPPORT AND COOPERATION RECEIVED FROM BOTH DEPARTMENTS.

BY TAKING ADVANTAGE OF ITA'S MAJOR ROLE IN INTERNATIONAL TRADE DEVELOPMENT AND PROMOTION, AND THE ENERGY DEPARTMENT'S PRIMARY RESPONSIBILITY FOR THE DEVELOPMENT OF ENERGY TECHNOLOGIES, A JOINT PROGRAM HAS BEEN ESTABLISHED TO ASSIST U.S. RENEWABLE ENERGY FIRMS IN OVERSEAS MARKETS. ITA'S INTERNATIONAL MARKET DEVELOPMENT NETWORK AND EXPERTISE, COMBINED WITH DOE'S KNOWLEDGE AND EXPERIENCE IN THE DEVELOPMENT OF RENEWABLE ENERGY TECHNOLOGIES, CAN CONTINUE TO PROVIDE THE STRONG STIMULUS NEEDED TO INCREASE U.S. RENEWABLE ENERGY OVERSEAS TRADE.

IN ADDITION TO THE DOC/DOE PROGRAM, AND JOINT EFFORTS WITH THE STATE DEPARTMENT, WE HAVE ALSO COMMUNICATED WITH THE U.S. INFORMATION AGENCY, THE OVERSEAS PRIVATE INVESTMENT CORPORATION, AND THE TRADE AND DEVELOPMENT PROGRAM IN MATTERS OF SUPPORTING EXPORTING EFFORTS BY U.S. RENEWABLE ENERGY FIRMS.

COMMENTS ON HR 3169

A MAJOR PURPOSE OF THIS COMMITTEE HEARING, MR. CHAIRMAN, IS TO ADDRESS THE PROPOSED LEGISLATION INTRODUCED BY CONGRESSMAN RON WYDEN AND PASSED BY THE HOUSE OF REPRESENTATIVES THIS PAST NOVEMBER. THE PROPOSED LEGISLATION, DESIGNATED HR 3169 AND ENTITLED "THE RENEWABLE ENERGY INDUSTRY DEVELOPMENT ACT," WOULD AMEND THE ENERGY POLICY AND CONSERVATION ACT FOR THE PURPOSE OF FACILITATING COMMERCE BY THE DOMESTIC RENEWABLE ENERGY INDUSTRIES. THE ACT DIRECTS THE COMMERCE DEPARTMENT TO CONDUCT A COMPETITIVE ASSESSMENT OF RENEWABLE ENERGY TECHNOLOGIES AND TO SUBMIT SUCH AN ASSESSMENT TO CONGRESS. THE LEGISLATION ALSO CALLS FOR A PROGRAM OF TRADE DEVELOPMENT ACTIVITIES TO BE CARRIED OUT BY THE COMMERCE DEPARTMENT BASED ON THIS ASSESSMENT, AND THE FORMATION OF AN INTERAGENCY WORKING GROUP TO COORDINATE EXISTING PROGRAMS WHICH AFFECT U.S. RENEWABLE ENERGY TRADE.

OVER THE PAST SEVERAL YEARS, THE COMMERCE DEPARTMENT HAS BEGUN TAKING THE NECESSARY STEPS TO ADDRESS THE PROBLEMS AND CRITICAL AREAS AFFECTING INTERNATIONAL MARKETING OF RENEWABLE ENERGY EQUIPMENT, PRODUCTS AND SERVICES. AS MY TESTIMONY INDICATES, OUR EFFORTS ARE FOCUSED ON EACH OF THE CENTRAL AREAS INCLUDED IN THE PROPOSED LEGISLATION. IN FORMULATING OUR APPROACH, WE HAVE WORKED CLOSELY WITH RENEWABLE ENERGY INDUSTRY REPRESENTATIVES, U.S. FIRMS AND OTHER GOVERNMENT AGENCIES. THE PROPOSED LAW IN EFFECT ENDORSES

OUR EFFORTS WITHOUT CLEARLY IDENTIFYING THE NEED FOR SUCH AN ENDORSEMENT. ALTHOUGH WE FULLY SUPPORT THE INTENT AND OBJECTIVES OF THIS LEGISLATION, THIS AREA DOES NOT WARRANT LEGISLATIVE ACTION. WE THEREFORE OPPOSE HR 3169.

ITA'S COOPERATIVE EFFORTS WITH THE RENEWABLE ENERGY INDUSTRY AND OTHER GOVERNMENT AGENCIES ARE BASED ON THE COMMERCE DEPARTMENT'S COMMITMENT TO IMPROVE THE COMPETITIVENESS OF U.S. INDUSTRY IN INTERNATIONAL MARKETS. BY CONTINUING TO JOINTLY DEVELOP PRIORITIES FOR INTERNATIONAL MARKET DEVELOPMENT, WE BELIEVE THAT WE CAN ACCELERATE THE PROGRESS MADE TO DATE IN INCREASING U.S. RENEWABLE ENERGY EXPORTING ACTIVITY.

FUTURE TRADE DEVELOPMENT EFFORTS

MR. CHAIRMAN, A FIRM PARTNERSHIP HAS BEEN ESTABLISHED BETWEEN ITA, OTHER U.S. GOVERNMENT AGENCIES AND INDUSTRY REPRESENTATIVES TO SUPPORT THE U.S. PRIVATE SECTOR ROLE IN INTERNATIONAL RENEWABLE ENERGY RESOURCE DEVELOPMENT. THE COOPERATION AND INTERACTION BETWEEN THESE GROUPS HAVE RESULTED IN A SOLID RECORD OF ACHIEVEMENT, AND FORM THE BASIS FOR OUR FUTURE TRADE DEVELOPMENT EFFORTS ON BEHALF OF THE RENEWABLE ENERGY INDUSTRY. THIS APPROACH NOT ONLY OFFERS GREAT PROMISE IN INCREASING U.S. EXPORTS AND ADDING TO ECONOMIC GROWTH, BUT, EQUALLY AS IMPORTANT, PROVIDES A MODEL FOR THE EFFICIENT USE OF LIMITED PUBLIC AND PRIVATE SECTOR RESOURCES.

THANK YOU FOR THE OPPORTUNITY TO DISCUSS WITH YOU ITA'S RENEWABLE ENERGY TRADE DEVELOPMENT PROGRAM. I AM NOW AVAILABLE FOR ANY QUESTIONS WHICH YOU MAY HAVE.

Senator HATFIELD. Thank you very much, Mr. Phillips.

Mr. Phillips, as I understand it, there are activities and interests which you have already indicated exists in your agency, the Department of Commerce, in the Department of Energy, in the Export-Import Bank, in the Small Business Administration, in the overseas investment program, in the AID program, and who knows how many others. Does it not seem then very apparent, or do you think it's necessary to have some kind of coordination of these activities, some kind of a structural relationship?

Mr. PHILLIPS. I do believe the coordination is necessary. The structural relationship specifically to this program we feel is not necessary.

The coordination of all programs in trade with Eximbank, OPIC, and all of the other agencies of the Government that are involved in trade is an ongoing function of the International Trade Administration, which we can apply to this program as we would any other.

Senator HATFIELD. I'm not quite sure I understand how you propose that all these various agencies' programs and activities be coordinated. How will that occur? Knowing Government as I know Government, it doesn't happen, unless there is some kind of framework within which that coordination takes place.

Mr. PHILLIPS. The framework that we use presently on other programs and in our ongoing trade responsibilities is simply the necessity of working with those agencies. And it's been quite successful. I see no reason why it couldn't be applied on this program equally as well without a structured program in itself.

That's not to say that in pursuing the renewable energy program the way we have that we would not establish the specific relationships with the appropriate departments of those agencies as we see fit. But I do think it would come about.

Senator HATFIELD. Well, if we don't have then a Cabinet structure to coordinate all these programs, then is it not important to have a lead agency approach to this coordination?

Mr. PHILLIPS. Yes, I do, and I believe the Department of Commerce is the lead agency.

Senator HATFIELD. You see yourself as the lead agency?

Mr. PHILLIPS. Yes, I do.

Senator HATFIELD. Do the other agencies see you as the lead agency?

Mr. PHILLIPS. Specifically talking about this program, I think both the State Department and the Department of Energy do in terms of the aspect of trade. As far as Eximbank is concerned, they see our role as the lead agency in trade matters. As far as OPIC is concerned, I think we have worked with them in the same fashion. So I do not believe we would have that kind of difficulty at all.

Senator HATFIELD. It might be then that through an Executive order, the President might direct the agencies to recognize the Commerce Department as the lead agency.

You see, Mr. Phillips, I don't see this—there may be comaraderie and communication at the moment, I think that may be because of the personalities of the leadership that there's a rapport, but I have seen too frequently where agencies do not have that rapport at the leadership level. And there has to be some kind of a directive, if you're going to follow the lead-agency role, that directs all the agencies to identify and recognize the lead agency. Otherwise, it's an amorphous situation, to move and flow with the personality changes and what have you that will occur. I think this is one of those things that has to be put in place in some kind of a structural understanding of who has either the basic responsibility or the lead responsibility or a Cabinet-level coordination.

Now in the House, as I understand it, the Department of Commerce did not oppose the bill. Now as I read your testimony, or as I understand your testimony, there's been some kind of shift here and that you're now telling me, as I hear you, you do not support this bill.

Mr. **Phillips**. In the testimony at the House, I think what we said was that we didn't see the necessity of it, but would not oppose it.

Since that time the program has gone forward so well that our position now is that the time has past either for the necessity of having the bill or for passive approval of it.

In respect to the Department of Commerce's responsibility in international trade, I think that that is a responsibility that the Department has taken and has been the lead agency in such matters.

As you know, we supported the idea of a Department of Industry and Trade which would handle this kind of a problem very easily. We do not foresee any problem with this program going forward. There is enthusiasm both within Commerce and with the other agencies we work with, and it's just simply a matter that we feel the legislation is unnecessary.

Senator **Hatfield**. This has evolved as you have moved into the program.

Mr. **Phillips**. As we have gone further with the consultation with industry, with working with them with the programs that have transpired in all the countries that we have been working with, and the confidence that it has been quite successful and has promise of being even more successful.

Senator **Hatfield**. Certainly, if this continues to evolve in a growing and satisfactory manner, are you budgeted sufficiently to assume this role as ever increasingly, or hopefully increasingly role of lead agency for 1984, 1985? Do you have sufficient moneys in your present 1984 budget to take on this additional responsibility as lead agency, and, do you have it projected in your 1985 budget?

Mr. **Phillips**. We do at Commerce, and also the funding from DOE that comes through the memorandum of understanding, they have included that money in their budget request for 1985. So there wouldn't be any requirement of additional funding beyond those requests we have already made.

Senator **Hatfield**. In the history of your Department, the greatest strides ever made in Commerce in promoting international trade was under Secretary of Commerce, Herbert Hoover, as you know, and that's the reason the building is named for him. He built the Department.

One of the great emphasis of his time as Secretary was to build this concept of promoting and establishing America as a major trading country.

Now, you have completed the great hall in terms of renovation, have you, in the Department of Commerce building? And that's where the public has a waiting pattern or holding pattern for tours of the White House, and so forth. Is that correct?

Mr. **Phillips**. Yes, sir.

Senator **Hatfield**. Have you any display areas there or educational materials that will give some reason why to the public at least, why that building is named for the former Secretary?

Mr. **Phillips**. We recently opened a museum in the building, and in our last year's phone book we had Mr. Hoover's picture on the front. We refer to it as the Hoover Building. I think in the past history we have not, I think that is a rather recent innovation.

Senator **Hatfield**. Mr. Kennedy of the Smithsonian had offered Secretary Baldrige at the time I introduced the legislation naming the building in honor of the former Secretary, that there are many ways in which the Smithsonian would be willing and happy to cooperate to set up exhibits and display areas to indicate the remarkable record of Secretary Hoover in developing such things as the airport systems of this country, the radio systems of this country, the standards in measurements and so forth for this country's commerce. I would think that anyone who works at that Department ought to be given a little bit of a briefing on that remarkable record, because they can learn much from it. And I think this is a case in point.

One of the interesting facts is that a lot of these things interrelate to other agencies. Mr. Hoover was called the Secretary Of Commerce and secretary of all other agencies as well, because of his recognizing that he had to coordinate international trade with Agriculture, the State, with many other agencies at that time. And he not only asserted himself as the lead agency, but he did it in such a way to set up a marvelous horizontal framework as well as a vertical framework.

I would urge you to maybe get a copy of the book that was written of his Commerce days, because he plowed this field, he set the precedents of this field, and you can learn much from that. And I think that at this point I have a feeling that this is evolving in a haphazard way. I may be wrong. We're assuming it's going smoothly, but I don't see the blueprint, I don't see the real thing in place that's going to maintain the coordination and give the authority and responsibility. You can't depend on goodwill entirely and communications. At this time you may, but certainly down the road as these things become more intense, you will get into interagency rivalries, you'll get into duplication, overlapping jurisdiction, turf, all of these things. And that was precisely the whole foundation and background that led Mr. Hoover to set up a very distinct framework for the Commerce as a lead agency on promoting international trade in 1921, 1922, 1923, 1924, 1925, 1926, 1927, and 1928. And those were the golden years of that Department. Ever since that time, that Department has been kind of, you know, on the slide. They've never had a Commerce Secretary before or since like him.

Mr. **Phillips**. Well again, as I mentioned, I think the Department of Industry and Trade is to respond to that concern, that it had become something other than what Mr. Hoover intended, I think, certainly in the areas of trade.

But the Secretary's position on trade is very strong, as you know, and all of us who are committed and dedicated to that primary purpose of commerce do take seriously the responsibility of being the lead agency.

I think we do that. I think the heritage that Hoover started is probably evidence enough that we can carry this program without additional legislative instructions.

Senator HATFIELD. I think you have the capacity and the capability, no question about that, both in the leadership of the Department and in the whole framework of the Department. Again I emphasize that I think it has to be somewhat structured in terms of understanding what that role is for other agencies who have a feed-in or have a correlated responsibility.

Well, you have had your Hoover lesson for today. I guess that's all I have to say to you at the moment.

Mr. PHILLIPS. Thank you very much.

Senator HATFIELD. Thank you. By the way, Mr. Phillips, on page I7 when you refer to this conference that you're programing or planning to call involving the representatives of U.S. renewable firms, Industry Trade Association, and so forth; have you made definitive plans as to time and location of such a conference?

Mr. PHILLIPS. We haven't set the time. It will be in the Commerce Department in Washington. And we are consulting with industry and the associations to set a time that would suit everybody.

Senator HATFIELD. I was going to urge you to have that certainly identified with your Department, and the best way to do it is to have it in your Department structure so that people will begin to focus in on that Department for that leadership role.

I would also suggest that you consider some regional conferences, because there are unique areas in the country that have or that could bring together in a followup, like we have had the White House conferences on various and sundry subjects, and then we have had State conferences that follow those White House conferences. It seems to me that this is of such import that you might consider the possibility of having regional conferences after your main conference here as a followthrough, followup and of spreading that out to a broader base than just the ones who attend the conference here.

Mr. PHILLIPS. It's a very good suggestion. We have participated in regional meetings and plan to in the future, but have not been the lead agency. It's been the associations and the industry doing it. And I think considering the Commerce Department taking the lead to doing those things is a very good idea.

Senator HATFIELD. If you decide to follow though on that, I'd be very happy to work with you in the regional one that you plan for Portland.

Mr. PHILLIPS. Very well, we'll do that. Thank you, sir.

Senator HATFIELD. Now we're happy to welcome back some veterans of testimony here, Donna R. Fitzpatrick, Principal Deputy Secretary for Conservation and Renewable Energy, the Department of Energy. And I believe Dr. Robert San Martin will be accompanying her, who is the Deputy Assistant Secretary for Solar and Renewable Energy.

It's nice to have you folks back. We're always glad to have you. Your testimony is always very helpful to us. So if you would like to proceed to summarize, we would be happy to hear from you.

STATEMENT OF DONNA R. FITZPATRICK, PRINCIPAL DEPUTY ASSISTANT SECRETARY, CONSERVATION AND RENEWABLE ENERGY, DEPARTMENT OF ENERGY, ACCOMPANIED BY DR. ROBERT SAN MARTIN, DEPUTY ASSISTANT SECRETARY, SOLAR AND RENEWABLE ENERGY

Miss Fitzpatrick. Thank you, Mr. Chairman. I do have a full statement which I would like to submit for the record and I will summarize it here.

Senator Hatfield. We will receive it for the record.

Miss Fitzpatrick. Mr. Chairman, we thank you for the opportunity to appear before the subcommittee today and to discuss the development of international markets for renewable energy technologies.

It is my responsibility to assist the Acting Assistant Secretary of Conservation and Renewable Energy in overseeing the activities of DOE programs relating to these technologies.

Conservation and renewable energy technologies promise increased competition within the marketplace, and they can serve to alleviate price and demand pressure on conventional fuels which are in finite supply.

Today I will describe the significant contribution which international trade initiatives can have in supporting the growth of the renewable energy industry.

The DOE renewable energy program is part of a balanced energy strategy that recognizes the importance of developing a full range of energy technologies which can compete in a free-market environment.

The private sector is primarily responsible for implementation and commercialization of these new ideas. The development of renewable energy technologies supports the national energy policy goal of providing an adequate supply of energy at reasonable cost.

Renewables offer the benefits of supply diversity, modularity of system sizes, and the flexibility to meet many types of specific energy demands. Collectively, their modularity and flexibility in direct thermal applications, bulk electricity supply, or in meeting requirements for liquid and gaseous fuels make these technologies highly attractive alternatives for private sector development and deployment.

Their development will enhance the ability of the Nation to respond rapidly to unpredictable fluctuations in supply and price of more conventional fuels. These very same features make renewable energy attractive within the international energy marketplace, especially in countries attempting to expand their industrial economies without the benefit of indigenous fossil fuel supplies.

For several renewable energy options, industry has begun the process of introducing specific concepts and products into the marketplace. Many of these options can be competitive for specific types of modular or dispersed applications, and a number of opportunities exist for increased sales of renewable energy in the international market.

These international marketing opportunities have generated the interest of those involved in renewable energy technology and commercial development. The interest of this subcommittee is reflected in the proposed legislation entitled the Renewable Energy Industry Development Act.

This legislation would require the Department of Commerce to establish a series of activities designed to assist U.S. industry in conveying their renewable energy products and services in the international marketplace.

The Department of Energy supports the goals of this legislation, and recognizes the benefits of increased exports by the U.S. renewable energy industry.

Many of the objectives of the bill are currently being pursued by various Federal agencies operating under existing statutory authorities.

It is important to recognize the important accomplishments of current industry and Government cooperation in this area.

A memorandum of understanding which was co-signed by the Departments of Energy and Commerce in October 1982, established a cooperative interagency effort for the exhibition and international trade promotion of renewable energy systems, products, equipment, and services.

Funding is provided by the DOE, with the program implementation conducted by the Department of Commerce International Trade Administration [ITA].

Under this agreement, the two Departments coordinate their efforts with an industry group known as the Export Council for Renewable Energy.

The Export Council currently has 10 member groups and associations, including all of the existing major renewable energy industry organizations.

Typically, ideas for possible trade events and activities are first proposed by the industry's Export Council in discussions with Department of Commerce officials.

For potential trade events, the Washington office of the ITA consults with overseas Commercial Service Officers located in the specific country under consideration. The Commercial Service Officer provides recommendations and specialized insights as to the potential benefits of conducting a trade event in the recommended country.

The ITA Washington office then reviews the various recommendations and its own independent analysis with DOE, then selects the best prospective country and type of event. The process for selecting and scheduling events is closely coordinated between the Departments of Commerce and Energy and industry.

This interagency program includes overseas trade events such as, exhibitions, specialized trade missions, seminar trade missions, and video catalog shows.

In 1983, overseas trade events under the program were conducted on a cost-shared basis with domestic industry in West Germany, Saudi Arabia, Kuwait, United Arab Emirates, Oman, Pakistan, Malaysia, Thailand, Cyprus, Kenya, Singapore, and the Canary Islands. ITA provided a variety of management support services to U.S. renewable energy firms participating in these overseas trade events.

The Departments of Energy and Commerce are preparing a number of other activities, such as trade law research studies which are very valuable to renewable energy firms seeking overseas markets. These studies consist of the collection and analyzing of foreign legislation and regulatory trade information which is peculiar to a specific country. This type of analysis provides effective direction to renewable energy firms wishing to penetrate international markets.

A number of energy trade events held in the United States are also sponsored, at which senior foreign government trade officials are encouraged to attend. These domestic trade shows, used as reverse trade missions, are proving to be highly successful in stimulating foreign interest in our renewable energy industry.

Examples such as these demonstrate the success of current interagency efforts in promoting renewable energy exports. Trade events that have taken place since the signing of the DOE and DOC Memorandum of Understanding have led to projected overseas sales of about $14.6 million for the U.S. renewable energy industry. This has been achieved at a cost to the Federal Government of only $187,000. This amounts to industry sales of about $78 for every Federal dollar spent.

In addition to the joint DOE-DOC effort, there exists a variety of other U.S. Government-sponsored export assistance programs available to renewable energy firms. These include financing for export sales by the Export-Import Bank, the U.S. Agency for International Development and the Overseas Private Investment Corporation.

The Small Business Administration also offers a variety of loan and loan guarantee programs to small businesses engaged in renewable energy. The SBA programs include export revolving lines of credit, international trade assistance, and the conservation and solar energy loan program.

The Government is conducting a number of renewable energy foreign trade activities which directly support the objectives of the bill under consideration.

As a final thought I would like to point out that through the DOE-DOC program, a series of seminars are being conducted to acquaint domestic industry with available governmental assistance; the intricacies of each program, and the requirements for participation. These forums, together with Export Council activities help accomplish the trade development coordination objectives of the pending legislation.

A substantial amount of progress has been made in areas affecting the competitiveness of U.S. renewable energy technology within the international marketplace. The technical research and development momentum established to date will be sustained in the Department of Energy's renewable energy research and development program. And industry and Government together will continue their coordinated effort to bring U.S. renewable energy technology to the international marketplace.

With regard to this pending legislation, we are in full accord with its goals, but conclude that a specific statute is not required to meet these objectives.

The Department of Energy is committed to cooperation and interaction with the Department of Commerce and the domestic renewable energy industry to increase the ability of U.S. business to compete in the international arena.

Mr. Chairman, I thank you for the opportunity to discuss with you today the Department's renewable energy and international trade.

[The prepared statement of Miss Fitzpatrick follows:]

STATEMENT OF
DONNA R. FITZPATRICK

PRINCIPAL DEPUTY ASSISTANT SECRETARY FOR
CONSERVATION AND RENEWABLE ENERGY
U.S. DEPARTMENT OF ENERGY

BEFORE THE
COMMITTEE ON ENERGY AND NATURAL RESOURCES
SUBCOMMITTEE ON ENERGY CONSERVATION AND SUPPLY

UNITED STATES SENATE
MARCH 22, 1984

RENEWABLE ENERGY INDUSTRY DEVELOPMENT
ACT TESTIMONY

Mr. Chairman and Members of the Committee:

Thank you for the opportunity to appear before you today to discuss the development of international markets for renewable energy technologies. It is my responsibility to assist the Assistant Secretary in overseeing the activities of the Office of Conservation and Renewable Energy. Conservation and renewable energy technologies promise increased competition within the marketplace and can serve to alleviate price or demand pressures on conventional fuels of potentially finite supply.

Today I will describe the direction of renewable energy technology development at the Department of Energy, including the important role of the private sector in the commercial development of these technologies, and the significant contribution international trade initiatives can have in supporting the growth of the renewable energy industry.

RENEWABLE ENERGY OVERVIEW

The DOE renewable energy program is part of a balanced energy strategy that recognizes the importance of developing a full range of energy technologies which can compete in a free market environment. The private sector is primarily responsible for implementation and commercialization of these new ideas.

Development of renewable energy technology supports the national energy policy goal of an adequate supply of energy at reasonable costs. Renewables offer supply diversity, modularity of system sizes, and the flexibility to meet many types of specific demands for energy. Collectively, their modularity and flexibility in direct thermal applications, bulk electricity supply, or in meeting requirements for liquid and gaseous fuels make them highly attractive alternatives for private sector development and deployment. Their development will enhance the ability of the nation to respond rapidly to unpredictable fluctuations in supply and price of more conventional fuels. These same features make renewable energy potentially attractive within the international energy marketplace, especially in countries attempting to expand their industrial economy without the benefit of indigenous supplies of fossil fuels.

The DOE program for renewable energy R&D concentrates on funding scientific and engineering research which will lead to a better understanding of: the characteristics of renewable energy resources; the technologies for converting these resources to more useful energy forms; and the methods and materials needed for industrial manufacture of renewable energy systems which have a cost effectiveness and reliability necessary for viability within the marketplace.

INTERNATIONAL RENEWABLE ENERGY DEVELOPMENT

Renewable technologies represent an extremely broad technology grouping where many specific resource and technology options remain within the research and development cycle. For several renewable energy options, however, industry has begun the process of introducing specific concepts and products into the marketplace. Many of these options can be competitive for specific types of modular or dispersed applications and a number of opportunities exist for increased sales of renewable energy within the international marketplace. These opportunities have generated the interest of those involved in renewable energy technology and commercial development.

The interest of this Committee is reflected in the proposed legislation entitled the "Renewable Energy Industry Development Act" (H.R. 3169). This legislation would require the Department of Commerce (DOC) to establish a series of activities designed to assist U.S. industry in conveying their products in the international marketplace. The bill would require DOC to conduct a detailed study of the domestic renewable energy industry and evaluate its ability to engage in international commerce. Based on the results of that study, the DOC would then establish a formal program to enhance international trade in renewable energy products. The bill would also establish an interagency working group chaired by the Secretary of Commerce, in which the Department of Energy would participate.

The Department of Energy supports the goals of H.R. 3169 and recognizes the potential benefits of increased exports by the United States renewable energy industry. Many of the objectives of the bill are currently being pursued by various federal agencies operating under existing statutory authorities. I believe it is important for each of us to reach a final conclusion on this bill which recognizes the important accomplishments of the current industry and government cooperation in this area.

DEPARTMENT OF ENERGY/DEPARTMENT OF COMMERCE
JOINT EXPORT DEVELOPMENT AGREEMENT

A Memorandum of Understanding was cosigned by the Departments of Energy and Commerce in 1982 for the purpose of establishing a cooperative interagency effort for the exhibition and international trade promotion of renewable energy systems, products, equipment, services, and technologies. Funding is provided by the DOE with the program implementation carried out by the International Trade Administration (ITA) of the Department of Commerce.

Under the Export Development Agreement, the two Departments coordinate their efforts with the renewable energy industry group known as the Export Council for Renewable Energy. The Export Council currently has ten member groups and associations, including all of the existing major renewable energy industry organizations.

Typically, ideas for possible trade events and activities are first proposed by the industry's Export Council in discussions with Commerce officials. For potential trade events, the Washington office of the ITA consults with the overseas Commercial Service Officer located in the specific country under consideration. The Commercial Service Officer provides the ITA Washington office with his recommendations and specialized insights as to the potential benefits of conducting a trade event in the recommended country. The ITA Washington office then reviews the various recommendations and the independent ITA analysis with DOE before final country and type of event selection are made. This process for selecting and scheduling events is closely coordinated between DOC, DOE, and industry.

The interagency program includes overseas trade events such as exhibitions, specialized trade missions, seminar trade missions, and video catalog shows. In 1983, overseas trade events that the program participated in on a cost-shared basis with domestic industry occurred in West Germany, Saudi Arabia, Kuwait, United Arab Emirates, Oman, Pakistan, Malaysia, Thailand, Cyprus, Kenya, Singapore, and the Canary Islands. The ITA provided a variety of management support to U.S. renewable energy firms participating in these overseas trade events.

The DOE/DOC program is preparing to support a number of other activities such as Trade Law Research Studies which are a type of market research that is valuable to the serious renewable energy firm interested in overseas markets. Such studies typically consist of foreign legislative and regulatory trade information peculiar to a specific country which has been verified by U.S. Commercial Service Officers. This type of analysis can provide a valuable roadmap to renewable energy firms competing in international markets.

A number of domestic energy trade events are also sponsored which senior foreign government trade officials are encouraged to attend. Domestic trade shows, used as reverse trade missions, are proving to be highly successful in stimulating foreign interest in our renewable energy industry. For example, the Renewable Energy Technologies Symposium & International Exposition (RETSIE) held last summer in Anaheim, California attracted over 40 high level officials from 18 countries. Secretary Hodel and Undersecretary Collins both attended this event and personally took part in the dialogue that occurred between U.S. industry and foreign government representatives. The next Department of Commerce trade show which includes renewable energy will be held this month (March 19-21) here in Washington, with international attendance expected.

Examples such as these demonstrate the success of current interagency efforts to promote renewable energy exports. Trade events that have taken place since the signing of the DOE/DOC Memorandum of Understanding in October 1982 have led to projected overseas sales of about $14.6 million to date for the U.S. renewable energy industry at a cost to the federal government of only $187,000. This amounts to industry sales of about $78 for every federal dollar spent.

OTHER RELATED FEDERAL GOVERNMENT ACTIVITIES

In addition to the joint DOE/DOC effort, there exists a variety of other U.S. government sponsored export assistance programs available to renewable energy firms.

The Export - Import Bank (EXIMBANK) is the major government financing organization for exporters. The Bank is working with U.S. suppliers and foreign purchasers to facilitate the sale of renewable energy resources. For example, in FY 1983 the EXIMBANK provided $647 million in direct credit support for exports for a hydroelectric project on the border between Argentina and Paraquay. The Bank also provided financing for the sale of photovoltaic generating equipment for a telecommunications system to be located in Columbia. Under the Export - Import Bank Act of 1945, the EXIMBANK offers financing under a wide variety of programs ranging from long-term direct loans to short and medium-term insurance and guarantees. Special emphasis is placed on meeting the export needs of small businesses.

The Agency for International Development (AID) provides financing for renewable energy projects in developing countries. In FY 1984, AID is allocating $83 million for renewable energy and fuel wood activities. This represents approximately 36 percent of their energy-related budget. Renewable energy projects typically include technical assistance and training for the design and operation of renewable energy systems, particularly in rural applications. Additionally, the Bureau for Private Enterprise in AID provides financing for host country firms to develop a domestic manufacturing capability and encourages joint ventures with U.S. firms.

The EXIMBANK and AID are now in the process of developing programs to respond to mixed credit financing offered by other countries for projects which might include renewable energy applications in developing countries. This new program is being designed to offset the subsidized export financing available from the official export credit agencies of Japan, France, and other countries.

The Small Business Administration (SBA) offers a variety of loans and loan guarantees to renewable energy small businesses. The SBA program includes an export revolving line of credit program and an international trade assistance program.

The Overseas Private Investment Corporation (OPIC) can provide assistance for renewable energy projects in developing countries. Projects are financed directly through loans or loan guarantees. OPIC also offers political risk insurance for overseas projects to U.S. firms, including renewable energy industrial interests.

The government is conducting a number of renewable energy foreign trade activities which directly support the objectives of the bill under consideration. As a final thought I would like to point out that, through the DOE/DOC program, we are conducting a series of seminars for the domestic industry to better advise them of these opportunities for governmental assistance, the intricacies of each program, and the requirements for participation. These forums, together with the activities of the Export Council, go a long way towards accomplishing the goal of the bill which relates to coordination of effort.

U.S. RENEWABLE INDUSTRY PROGRESS

The private sector is also doing its part to increase renewable energy exports. As the renewable energy industry continues to grow in size and sales, its firms are increasingly looking overseas for business development. In addition to directly cost sharing in export trade shows, missions and seminars, joint ventures with foreign firms are increasing in renewable energy, especially in photovoltaics. For instance, one U.S. firm is in a joint venture with a Japanese firm to manufacture and sell photovoltaic cells. At least four other photovoltaic firms have sold or are planning to sell photovoltaic manufacturing equipment, including complete factories in some cases, to foreign countries. Some of the countries involved include Pakistan, Morocco, Mexico, China, and Australia.

CONCLUDING REMARKS

A substantial amount of progress has been made in areas affecting the competitiveness of U.S. renewable energy technology within the international marketplace. The technical research and development momentum established to date will be continued within the technology research and development programs sponsored by DOE and industry. As previously discussed, industry and government together have made substantial progress towards a coordinated effort to offering U.S. renewable technology to the marketplace.

With regard to this pending legislation, we are in full accord with its announced goals but conclude that a specific statute is not required to meet these objectives. While there may be merit to further tightening up coordination and specifically endorsing existing efforts in this area, we see no incremental value in a specific law.

The Department of Energy is committed to cooperation and interaction with the renewable energy industry to increase the ability of the U.S. renewable energy industry to develop in the international arena. Thank you for the opportunity to discuss renewable energy and international trade with you here today. I now am available for any questions you may have.

Senator HATFIELD. Thank you, Miss Fitzpatrick.

I gather both in the beginning and in the ending of your testimony, you subscribe to the goals of the bill but you don't feel the bill is necessary to enact into a law. Is that correct?

Miss FITZPATRICK. Yes, sir.

Senator HATFIELD. Miss Fitzpatrick, do you recognize the Department of Commerce is the lead agency on this matter? I note you to refer to a memorandum of agreement that the two agencies have reached. That gives me the impression that you see yourselves as coequal in this role as lead agency, or do you submit yourself to the Commerce Department as the lead agency?

Miss FITZPATRICK. We recognize Department of Commerce expertise and resources in the international trade area. And I believe that they recognize Department of Energy expertise and resources in understanding renewable technologies and their potential in different environments in certain countries. And so we work together, recognizing each Department's strengths.

Senator HATFIELD. Sort of like William and Mary. [Laughter.]

You identify OPIC and AID and the Export-Import Bank, SBA, and these others that have some, again some speciality role to play.

Do you feel that there is sufficient interaction here that gives coordination to all of these individual specialties under a directional, single-direction movement?

Miss FITZPATRICK. Mr. Chairman, I think that we are working with all of these agencies, and constantly attempting to improve coordination in this area. In anything that's as complicated as the Federal Government, constant vigilance is required to avoid the pitfalls of failures in coordination. So we are continuously working with all of these agencies.

Senator HATFIELD. Then, of course, I wouldn't expect you to say that you are refusing to work with any of these agencies.

Miss FITZPATRICK. No, sir. I wouldn't say it's perfect either.

Senator HATFIELD. You know these people personally, these agencies through their leader, through the agency leadership, and you all have a good working relationship?

Miss FITZPATRICK. We have specific contacts within certain agencies. For example during my relatively short time at DOE, I have been at the Department of Energy and have met with the representative from the U.S. Agency for International Development.

They are very interested in helping renewable technologies penetrate in many Third World countries where a great potential exist.

Senator **Hatfield**. How long has this been going on in this particular new interaction relationship, this question or this issue? How long have you been involved in this?

Miss **Fitzpatrick**. Of course, a renewable energy industry, for most practical purposes, didn't exist until this past decade. It has been growing extremely rapidly, and the nature of the industrial relationship with Government has matured accordingly.

Many of the trade development programs that we're talking about have been available to all U. S. traders for a long period of time, but have become increasingly important to the renewable energy industry as the number of commercial products has increased over the past several years.

As I mentioned, particulaly in the SBA, there are now a number of energy programs available. As the industry has grown, and international trade opportunities have also grown, and Federal agencies have begun to react in response to the increased need for assistance.

Senator **Hatfield**. Have you been congregated at any one time all these agencies, or is this 1 on 1?

Miss **Fitzpatrick**. I would like to defer to Dr. San Martin to answer that.

Dr. **San Martin**. Mr. Chairman, I cannot recall over the last few years if there has been a congregation of every individual agency at one place. Typically, meetings have included several organizations to coordinate, and exchange future plans in areas of mutual responsibility or interest. Some of the participating organizations are principally interested in financial assistance activities, others bring knowledge of the technology, and others provide marketing information from their representatives that are stationed in foreign countries. So in total, the available participants offer a combined set of resources which can greatly assist in promoting the export potential of renewable energy technologies.

Senator **Hatfield**. Who convened these meetings that you have referred to?

Dr. **San Martin**. Mr. Chairman, there have been times when the Department of Energy has convened a meeting of several groups as opposed to 1-to-1 agency discussions. I'm sure that the Departments of Commerce and State have on occasion taken the lead in coordinating various agencies efforts.

Senator **Hatfield**. They weren't on a regular basis, they just happened to be convened under what kind of a circumstance? Why were they convened at all?

Dr. **San Martin**. As far as multiagency meetings go, Mr. Chairman, I am not aware that they have been convened on a preset regular basis over an extended period of time. Typically there have been situations when many of the agencies involved felt that it would be fruitful to convene group meetings.

Now, with regards to agency-to-agency relationships, for instance, the Department meets with AID monthly or even more frequently when circumstances demand it. In our relationship with the Department of Commerce, we communicate at least on a weekly basis. So it does vary from agency to agency.

Senator Hatfield. If you received an inquiry from someone in the private sector who is involved in this kind of business and they were seeking some help or some information and you didn't have that particular information but maybe one of these other agencies did have, how would you handle that? Would you refer them then to this other agency, or how would someone come who really needed some help or wanted some information, how would they find it?

Dr. San Martin. Mr. Chairman, we do that quite frequently. If the question being asked by an industrial representative is sufficiently narrowly posed that a particular agency organization can be identified to best provide assistance we would certainly direct them there.

We also do many times supply them with contact points, agencies, and the general type of services that can be offered to support their endeavors. This happens quite frequently because many times we receive a request for general assistance versus a well-posed and well-defined question.

Senator Hatfield. Would you see an advantage of having a coordinating identity or entity with the adjunct resource of a clearing house for all this information that would have a very distinct bullseye focus known to the public for that, in just a matter of dissemination of information, coordinating information within the agencies, would you not see an advantage to that? Miss Fitzpatrick?

[No response.]

Senator Hatfield. Dr. Martin?

Dr. San Martin. Mr. Chairman, the more focused and organized any activity is, the more effective it becomes. The item that we always collectively struggle with is determining what level of effort is actually justified. And as Miss Fitzpatrick mentioned, coordination is a difficult activity in an organization as large as the Federal Government. There is room for improvement, Mr. Chairman, it is a continual struggle.

Senator Hatfield. Did OMB have any input into your positioning on this question?

Dr. San Martin. Mr. Chairman, I believe all agencies always counsel with OMB on matters of this nature.

Senator Hatfield. Thank you very much. You have been more helpful in the past, but I expect to see you more helpful in the future.

Miss Fitzpatrick. Thank you, Mr. Chairman.

Dr. San Martin. Thank you.

Senator Hatfield. Now, we will have a panel from the industry, Mr. Tom Mayfield, Mr. Herbert Mulqueen, and Mr. Samuel Enfield.

Gentlemen, you may proceed as you wish to summarize your statement, or to have a written statement for the record now or later. We will keep the record open for 2 weeks for receiving testimony. And I would like to invite the author of the bill, Congressman Wyden to submit any written testimony, make sure that he has that information and that we would be very happy to receive testimony from him at any time within that 2-week period.

We're happy to have you here. Please proceed.

[The prepared statement of Mr. Wyden follows:]

Congressman Ron Wyden
March 22, 1984

TESTIMONY ON HR 3169, BEFORE THE SENATE ENERGY SUBCOMMITTEE ON ENERGY CONSERVATION AND SUPPLY

Mr. Chairman, I wish to thank you and Senator Weicker for convening today's hearing on HR 3169, the Renewable Energy Industry Development Act. Let me first commend you for your strong and continued leadership in developing our nation's renewable energy resources. Your efforts are invaluable and I very much look forward to working with you on HR 3169.

The Renewable Energy Industry Development Act calls for an assessment of the competitiveness of our renewable energy industry and for the establishment of a federal government focal point for the renewable energy export industry.

An assertive trade policy in the renewable energy sector -- one that is consistent with our free trade stance and with international trade agreements -- is essential to preserving our present market preeminence.

The vitality of our domestic renewable energy industry hinges on international market development, and the competition is fierce and growing more so all the time. The export market accounts for 50 percent of sales by U.S. photovoltaic manufacturers, for example.

Though a growing worldwide market exists for renewable energy technologies and related services, America is increasingly losing ground to its competitors.

The U.S. share of the world market in photovoltaics for instance, has dropped from 80 percent in 1980 to 55 percent in 1982.

Though our technology is often superior, the aggressive marketing practices of our competitors clearly indicate the growing importance of marketing skills and investment strategy over that of technology.

HR 3169 forms the basis for a comprehensive marketing strategy for the U.S. renewable energy industry -- a strategy that does not distort free market competition or violate international agreements.

HR 3169 devotes existing resources within the U.S. Government to develop a better understanding of the competitive strengths and disadvantages of American renewable energy industries, to better understand the government intervention abroad that seriously affects trade and investment flows, and to ensure timely communication of potential market opportunities to U.S. businesses by the many U.S. agencies that have overseas operations.

In short, the bill gives the Secretary of Commerce the responsibility for developing a comprehensive program for identifying strengths and weaknesses in US competitiveness and developing a strategy for improvement.

Our stake in maintaining a healthy industry in this sector is clear. It is equally clear that overseas markets are of growing significance to the health of our industry, and that we have arrived at the point where we need to be organizationally equipped to provide the kind of leadership neccessary to give assertive direction to the development and implementation of a trade policy in this sector.

Today, the American worker and American industry faces global markets and intense foreign competition. This bill is intended to get the U.S. to think coherently about our trade objectives and goals in this sector. We must begin now to define what our national interest is in renewable energy technology and services trade and how best to achieve it.

I appreciate the opportunity to address the need for HR 3169.

STATEMENT OF THOMAS L. MAYFIELD, CHAIRMAN, UNITED STATES EXPORT COUNCIL FOR RENEWABLE ENERGY

Mr. **Mayfield**. Mr. Chairman, and members of your staff, good morning. My name is Thomas L. Mayfield. I am Chairman of the United States Export Council for Renewable Energy. I am also president of the International Trade Subcommittee for Solar Energy Industry Association. And on behalf of these organizations, I would like to thank you for the opportunity of appearing here today to discuss H.R. 3169, the Renewable Energy Industry Development Act of 1983.

Mr. Chairman, I have been directly involved with renewable energy since 1973, and have been active in the international marketplace sice 1976. I am currently a director of international business development for the Technical Operations Division of Martin Marietta Denver Aerospace Corp. And in this position, I have been marketing on a worldwide basis Martin Marietta's solar equipment and systems over the past 4 years.

I am submitting a written testimony for the record, but at this time I would like to deviate from my written testimony that will be recorded and go into a personal testimony of instances that have happened to me in the marketplace in the solar industry.

I would like to recall one instance in the past year and a half that occurred in the Caribbean. I was requested to look into the Caribbean basin area, particularly because of their energy usage of oil and their need of renewable energies.

In doing a study in particular in Jamaica, I found that they had over 99 percent of their oil need was exported for electrical generation. And I did a partial study, what we call a prefeasibility to determine whether or not our products could work in this area.

Upon the completion of that study I found that in dealing with the Government of Jamaica that they, indeed, would like to go farther into the renewable energy segments. I began to look, of course, for moneys to continue such an effort, and in doing so I was brought into play into many of our agencies that now we're looking for this particular bill to bring together for coordination.

In working with Jamaica, as many of your Third World nations, they have great needs but little moneys in which to finance their own.

I, in turn, looked to U.S. AID; I, in turn, looked to other agencies within our Government, of which many have programs, unfortunately they were not at that time, which was 1 year ago, coordinated in which they could work together as we are now looking to try to get them to do.

Consequently, one agency would say they looked at one particular group to furnish their information; another agency would say they look to another group. We found that after 1 year we were no farther along in progressing of doing the studies needed to go forward in the program. I, in turn, looked to another government and company to team with, particularly Canada with their CIDA program, which is the Canadian International Development Agency. Which, in turn, teaming with another engineering company there, they obtained funds in approximately 4 months in which to go forward to do the study. Unfortunately though when it got down to my effort in the study, the Government of Canada, of course, would not allow us to have enough money to do our portion, so we had to relinquish it completely to the Canadian company to do the initial study, of which they have now completed it.

I guess what I am trying to say is that in trying to go through the different agencies, in trying to get their coordinated efforts together it took too long. The Jamacian Government said to my particular industry "Sorry, we cannot wait this long for you to try to put your act together."

That's a terrible thing, when an American company goes forward to try to get an initiative into a particular area, finally has to surrender it because it is being offered to other countries, such as Japan, and such as Germany and Israel, then going to another country to try to team with someone and then losing it. That is one of many stories that I have heard coming through the Renewable Energy Export Council.

I will say this. In working with some of the agencies, particularly DOC at the moment, that they are working very hard to put together their programs. As testimony before me indicated, I am working with them, other members of ECRI are working with the Department of Commerce.

I will say the Department of Energy has been working very hard with engineering groups and trying to do R&D studies and programs.

I will say that we must coordinate. There must be a lead agency. A small industry concern cannot afford to go through every agency and spend the time to try to work out the programs and what programs there are.

Even in my resource category it is very time consuming, very hard. ECRI is now trying to work with the Department of Commerce to put out and be the buffer between the Department of Commerce and industry. We hope to accomplish this. We are finding much support in those efforts, but we are still, through the industry itself, need to have one area that we can look at that cannot only give marketing program information, can also give technical data information.

That's the biggest problem we find in going overseas, is that our field offices, U.S. AID offices, do not know what is the latest technical data. They look to a source that may not be the same source that DOE has available, and by the time they do get those resources, many times it's too late.

I would like to stop at that point and receive any questions that you might have to myself.

[The prepared statement of Mr. Mayfield follows:]

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TESTIMONY

MR. THOMAS L. MAYFIELD, CHAIRMAN
UNITED STATES EXPORT COUNCIL FOR RENEWABLE ENERGY

BEFORE
SUBCOMMITTEE ON ENERGY CONSERVATION AND SUPPLY
COMMITTEE ON ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE

March 22, 1984

MR. CHAIRMAN, AND MEMBERS OF THE SUBCOMMITTEE, GOOD MORNING. MY NAME IS THOMAS L. MAYFIELD. I AM CHAIRMAN OF THE UNITED STATES EXPORT COUNCIL FOR RENEWABLE ENERGY. I AM ALSO PRESIDENT OF THE INTERNATIONAL TRADE SUBCOMMITTEE OF THE SOLAR ENERGY INDUSTRIES ASSOCIATION. ON BEHALF OF EACH OF THESE ORGANIZATIONS, I WOULD LIKE TO THANK YOU FOR THE OPPORTUNITY OF APPEARING HERE TODAY TO DISCUSS H. R. 3169, THE RENEWABLE ENERGY INDUSTRY DEVELOPMENT ACT OF 1983.

MR. CHAIRMAN, I HAVE BEEN DIRECTLY INVOLVED WITH RENEWABLE ENERGY SINCE 1973, AND I HAVE BEEN ACTIVE IN THE INTERNATIONAL MARKETPLACE SINCE 1976. I AM CURRENTLY A DIRECTOR OF INTERNATIONAL BUSINESS DEVELOPMENT FOR THE TECHNICAL OPERATIONS DIVISION OF MARTIN MARIETTA DENVER AEROSPACE CORPORATION. IN THIS POSITION I HAVE BEEN ACTIVELY MARKETING ON A WORLDWIDE BASIS MARTIN MARIETTA'S SOLAR EQUIPMENT AND SYSTEMS.

BEFORE PROCEEDING TO DISCUSS H. R. 3169, I WOULD LIKE TO OFFER THE SUBCOMMITTEE SOME GENERAL OBSERVATIONS ON THE WORLD MARKET FOR RENEWABLE ENERGY SYSTEMS AND TECHNOLOGIES, AS WELL AS ON THE STATUS OF THE U. S. INDUSTRY WITHIN THAT MARKET.

MANY NATIONS OF THE WORLD ARE VERY SERIOUSLY INTERESTEL IN USING INDIGENOUS, RENEWABLE ENERGY RESOURCES. IN SOME INSTANCES, THIS IS DONE BY RETURNING TO TRADITIONAL RENEWABLE ENERGY SYSTEMS THAT WERE ABANDONED DURING THE YEARS OF CHEAP OIL. BUT IN MANY OTHER INSTANCES, RENEWABLE ENERGY IS BEING TAPPED BY NEW TECHNOLOGIES EVOLVING OUT OF THE PAST DECADE'S VERY CONSIDERABLE DEVELOPMENT EFFORT. SOLAR ENERGY FOR HEATING WATER, FOR INDUSTRIAL PROCESSES AND FOR ELECTRICITY, WIND ENERGY FOR WATER PUMPING OR FOR ELECTRICITY GENERATION, AND BIOMASS-BASED FUELS OF A VARIETY OF FORMS AND USES, ALL SUPPORT GROWING YOUNG INDUSTRIES.

THE WORLD MARKET FOR WIND GENERATORS, FOR EXAMPLE, MORE THAN DOUBLED ITS 1982 LEVELS IN 1983. THE WORLD MARKET FOR PHOTOVOLTAICS NEARLY DOUBLED ITS SIZE OVER THE SAME PERIOD OF TIME.

THE UNITED STATES HAS, AS YOU WELL KNOW, MR. CHAIRMAN, LED THE WORLD IN THE RECENT DEVELOPMENT OF RENEWABLE ENERGY TECHNOLOGIES. THE U. S. INDUSTRY HAS HELD THE LION'S SHARE OF THE WORLD RENEWABLE ENERGY MARKET IN RECENT YEARS AS WELL. THAT SITUATION, HOWEVER, IS CHANGING. MUCH AS THE WORLD IS BECOMING INTERESTED IN USING RENEWABLE ENERGY SYSTEMS, IT IS ALSO BECOMING INTERESTED IN PRODUCING THEM. A NUMBER OF OUR INDUSTRIAL COMPETITORS ARE DEVELOPING VERY SUBSTANTIAL RENEWABLE ENERGY INDUSTRIES THAT ARE CHALLENGING THE U. S. LEAD AROUND THE WORLD.

FOR EXAMPLE, ACCORDING TO STRATEGIES UNLIMITED, A CALIFORNIA

BASED MARKET RESEARCH FIRM THAT FOLLOWS SELECTED RENEWABLE ENERGY INDUSTRIES VERY CLOSELY, THE U. S. SHARE OF THE WORLD PHOTOVOLTAICS MARKET DECLINED FROM 86 PERCENT IN 1976 TO 63 PERCENT IN 1983. IT IS EXPECTED TO DROP TO 56 PERCENT IN 1984. THE U. S. SHARE OF THE WORLD WIND GENERATOR MARKET DECLINED FROM 79 PERCENT IN 1982 TO 74 PERCENT IN 1983.

MOST OF THE COMPETITION BETWEEN U. S. AND FOREIGN RENEWABLE ENERGY FIRMS AT THIS TIME IS OVER THIRD COUNTRY MARKETS. BUT SOME FOREIGN FIRMS ARE SUCCESSFULLY MARKETING IN THE UNITED STATES AS WELL, AND IT IS WIDELY HELD WITHIN THE INDUSTRY THAT THE JAPANESE SOLAR INDUSTRY EXPECTS TO BECOME A STRONG - IF NOT DOMINANT - FORCE IN THE U. S. PHOTOVOLTAICS MARKET.

IN GENERAL, THE GROWING SUCCESS OF OUR FOREIGN COMPETITORS IN RENEWABLE ENERGY IS BASED ON THREE FACTORS. FIRST, GOVERNMENTS HAVE SUPPORTED INDUSTRY IN THE DEVELOPMENT OF COMMERCIALLY VIABLE RENEWABLE ENERGY TECHNOLOGIES, BASED IN MANY INSTANCES ON U. S. PIONEERED WORK. SECOND, FOREIGN COMPANIES ENJOY A SIGNIFICANT EDGE IN EXPERIENCE IN INTERNATIONAL MARKETING. AND THIRD, GOVERNMENTS HAVE CONTRIBUTED ADDITIONAL RESOURCES TOWARD HELPING THEIR INDUSTRIES ADDRESS AND SUCCEED IN INTERNATIONAL MARKETS.

IN TERMS OF TECHNOLOGY, THE U. S. RENEWABLE ENERGY INDUSTRY

REMAINS CONFIDENT STILL THAT IT IS OFFERING THE BEST AVAILABLE IN TECHNOLOGY. THE PERCEPTION OF THAT IN THE WORLD MARKETPLACE, HOWEVER, IS INCOMPLETE. AND ALTHOUGH GOVERNMENT SUPPORT IN THIS COUNTRY FOR RENEWABLE ENERGY TECHNOLOGY DEVELOPMENT IS REGAINING A DEGREE OF STABILITY, THE RAPID REDUCTION IN THIS AREA DURING THE PAST THREE YEARS HAS HAD A VERY DAMAGING EFFECT ON CONFIDENCE IN U. S. INDUSTRY'S TECHNOLOGY. THIS SITUATION UNDERSCORES THE IMPORTANCE OF PROGRAMS TO HELP THE U. S. RENEWABLE ENERGY INDUSTRY GET OUT INTO THE INTERNATIONAL MARKETPLACE TO DISPLAY FIRST HAND ITS STATE-OF-THE-ART TECHNOLOGY.

THE LACK OF DIRECT EXPERIENCE IN INTERNATIONAL MARKETS OF U. S. INDUSTRY OVERALL MAY ONLY BE REMEDIED IN TIME. THE U. S. GOVERNMENT IS RESPONDING WITH POLICIES TO INCREASE THE RESOURCES THAT OUR ECONOMY CAN BRING TO BEAR IN SUPPORT OF COMPANIES DEVELOPING EXPORT MARKETS. THE EXPORT TRADING COMPANY ACT OF 1982 IS INDICATIVE OF THIS, IN PERMITTING COMPETING COMPANIES TO POOL EFFORTS IN THE EXPORT AREA AND BANKS, WITH THEIR INTERNATIONAL FINANCE EXPERTISE, TO ENTER THE EXPORT TRADING COMPANY BUSINESS. BUT IT IS AN UNALTERABLE FACT THAT U. S. INDUSTRY STILL SUFFERS FROM A DEFINITE LACK OF EXPERIENCE IN THE BASIC FUNDAMENTALS OF INTERNATIONAL MARKETING, AND PERHAPS AN ESTABLISHED PREFERENCE FOR DOING BUSINESS IN THIS COUNTRY.

THE U. S. RENEWABLE ENERGY INDUSTRY IS, I BELIEVE, AS WELL POSITIONED AS ANY TO LEAD THE WAY IN REVERSING THIS SITUATION. THE RENEWABLE ENERGY MARKET POTENTIAL IS PROBABLY GREATER OVERSEAS THAN IT IS IN THIS COUNTRY, BECAUSE OF HIGHER ENERGY PRICES IN GENERAL AND GREATER INTEREST IN REDUCING THE USE OF OIL. THE U. S. INDUSTRY IS AWARE OF THAT AND IS VERY SERIOUSLY INTERESTED IN CAPITALIZING ON ITS TECHNOLOGICAL STRENGTH NOW TO EXPLOIT THE INTERNATIONAL MARKET. I MIGHT INTERJECT AT THIS POINT, MR. CHAIRMAN, THAT HELPING IT DO SO WILL VERY POSITIVELY AFFECT ITS ABILITY TO CONTRIBUTE TO ENERGY PRODUCTION HERE AT HOME. THE COST OF RENEWABLY BASED ENERGY IS STILL VERY MUCH INFLUENCED BY THE VOLUME OF PRODUCTION OF RENEWABLE ENERGY SYSTEMS. BY CONTRIBUTING TO THE GROWTH OF THE PRODUCTION BASE OF THIS INDUSTRY, THE INTERNATIONAL MARKET PLAYS AN IMPORTANT ROLE FOR THE DOMESTIC ENERGY SITUATION OF THE UNITED STATES.

THE PRIVATE SECTOR EXPORT TRADING INDUSTRY IS DEVELOPING SLOWLY, HOWEVER. A LACK OF CONFIDENCE IN THE ANTITRUST GUARANTEES PROVIDED IN THE EXPORT TRADING COMPANY ACT IS ONE FACTOR. GENERAL CONSERVATISM ON THE PART OF BANKS WITH RESPECT TO ENTERING THIS AREA IS ANOTHER. IN ADDITION, IT APPEARS THAT EARLY ACTIVITY IN THE TRADING COMPANY SECTOR IS CENTERING ON OLDER INDUSTRIES WITH MORE ESTABLISHED MARKETS. FOR ALL OF THESE REASONS, THEN, IT APPEARS THAT THE U. S. RENEWABLE ENERGY INDUSTRY WILL

CONTINUE TO NEED EXPORT MARKETING ASSISTANCE FROM THE GOVERNMENT, MUCH LIKE THAT PROVIDED WITH GREAT SUCCESS BY FOREIGN GOVERNMENTS TO THEIR OWN INDUSTRIES.

THE WAYS IN WHICH FOREIGN GOVERNMENTS SUPPORT THEIR INDUSTRIES ARE VARIED. LONG TERM INVESTMENT AND MARKETING STRATEGIES ARE SOMETIMES MADE JOINTLY BETWEEN INDUSTRY AND GOVERNMENT; TRADE MISSIONS OF GOVERNMENT AND INDUSTRY OFFICIALS TO PROSPECTIVE MARKETS ARE CONDUCTED; DEMONSTRATION PROJECTS USING OFF-THE-SHELF SYSTEMS ARE LOCATED IN PROSPECTIVE MARKETS, WITH THE HOPE THAT THEY WILL GENREATE FOLLOW-ON BUSINESS; TRAINING PROGRAMS ARE CONDUCTED WITH HOME PRODUCED SYSTEMS, BUILDING FAMILIARITY WITH THOSE SYSTEMS SPECIFICALLY; AID PROGRAMS ARE TIED TO AGREEMENTS TO PURCHASE PRODUCTS FROM THE DONOR COUNTRY, AND MORE LENIENT EXPORT FINANCING IS MADE AVAILABLE THROUGH THE COMBINATION OF CONCESSIONAL AID WITH COMMERCIAL FINANCING.

THERE ARE SPECIFIC EXAMPLES OF THESE TYPE OF ACTIVITIES IN THE RENEWABLE ENERGY FIELD:

- GERMANY HAS DONATED NUMBERS OF 11KW WIND MACHINES MANUFACTURED BY THE GERMAN FIRM, M.A.N., TO BOTH GREECE AND MALTA AS DEMONSTRATION PROJECTS.
- IN BAHRAIN, A U. S. COMPANY ORIGINATED A CONCEPT FOR A

MAJOR PHOTOVOLTAICS PROJECT, THEN LOST THE OPPORTUNITY WHEN FRANCE DONATED A FRENCH SYSTEM TO THE PROJECT.

- A CANADIAN FIRM WON A COMPETITION TO PERFORM A FEASIBILITY STUDY IN JAMAICA BECAUSE IT RECEIVED ON A MORE TIMELY BASIS ASSISTANCE FROM ITS GOVERNMENT IN THE FORM OF A SOLE SOURCE CONTRACT PROVIDING THE FINANCING FOR THE STUDY.
- IN DOMINICA, A FRENCH FIRM WON A GEOTHERMAL BID AFTER THE FRENCH GOVERNMENT FINANCED THE PROJECT'S FEASIBILITY STUDY.

ONE CAN SEE FROM THESE EXAMPLES HOW PIVOTAL A ROLE A GOVERNMENT CAN PLAY IN THE DEVELOPMENT OF NEW MARKETS, PARTICULARLY IN PRODUCT AREAS WHERE EXPERIENCE IS LIMITED AND THE PRIVATE SECTOR INFRASTRUCTURE IS NOT WELL ESTABLISHED. FOR THE U. S. RENEWABLE ENERGY INDUSTRY, THIS IS ONLY COMPOUNDED BY THE FACT THAT MOST COMPANIES ARE SMALL, CAPITAL-CONSTRAINED AND STILL COMMITTED TO PRODUCT DEVELOPMENT. THEY SIMPLY CANNOT AFFORD TO CARRY ALONE THE CONSIDERABLE EXPENSE OF INTERNATIONAL MARKET DEVELOPMENT.

MR. CHAIRMAN, I DO NOT INTEND TO IMPLY THAT THE UNITED STATES IS DEVOID OF PROGRAMS THAT SUPPORT ITS INDUSTRIES IN THEIR EXPORT EFFORTS. ON THE CONTRARY, WE HAVE A WIDE VARIETY OF GOVERNMENT PROGRAMS IN THIS AREA. THE ISSUES BEFORE US TODAY, I BELIEVE, REGARD THE STATUS OF THE GROWING AND PROMISING AREA OF RENEWABLE ENERGY WITHIN THOSE PROGRAMS AND THE DEGREE TO WHICH OUR EXPORT ORIENTED PROGRAMS COMPLEMENT EACH OTHER AND PROVIDE MAXIMUM ASSISTANCE TO THE U. S. INDUSTRY.

BRIEFLY, MR. CHAIRMAN, LET ME REVIEW THE PROGRAMS CONDUCTED BY THIS GOVERNMENT THAT ASSIST IN THE EXPORT AREA.

- THE TRADE AND DEVELOPMENT PROGRAM FUNDS PLANNING SERVICES AND FEASIBILITY STUDIES IN DEVELOPING COUNTRIES WHICH - IT IS HOPED - WILL LEAD TO EXPORT OPPORTUNITIES FOR U. S. FIRMS.
- THE OVERSEAS PRIVATE INVESTMENT CORPORATION OFFERS CREDIT INSURANCE FOR INVESTMENTS BY U. S. COMPANIES IN DEVELOPING COUNTRIES AGAINST RISKS OF POLITICAL DISRUPTION OR CURRENCY INCONVERTIBILITY.
- THE AGENCY FOR INTERNATIONAL DEVELOPMENT SUPPORTS PROJECTS IN DEVELOPING COUNTRIES WHICH CAN PROVIDE COMMERCIAL OPPORTUNITIES FOR U. S. FIRMS.
- THE EXPORT-IMPORT BANK OFFERS DIRECT LOANS AND LOAN GUARANTEES IN SUPPORT OF OVERSEAS TRANSACTIONS BY U. S. COMPANIES.
- THE SMALL BUSINESS ADMINISTRATION OFFERS GUARANTEES OF BANK ISSUED LINES OF CREDIT FOR SMALL EXPORTING BUSINESSES.
- THE DEPARTMENT OF COMMERCE'S INTERNATIONAL TRADE ADMINIS-

TRATION ORGANIZES BY INDUSTRY OVERSEAS TRADE MISSIONS AND DELEGATIONS TO OVERSEAS TRADE SHOWS, AND RECRUITS FOREIGN BUYERS FOR U. S. TRADE SHOWS. IN ADDITION, THE DEPARTMENT MONITORS THE CONDITION OF U. S. INDUSTRIES IN THE INTERNATIONAL MARKET.

IN ADDITION TO THESE EXPORT ORIENTED PROGRAMS, THE DEPARTMENT OF ENERGY HAS CONDUCTED EFFORTS TO STIMULATE THE EXPORT OF U. S. ENERGY TECHNOLOGIES, INCLUDING RENEWABLE ENERGY. IN THE RENEWABLES AREA, THESE EFFORTS INCLUDED BILATERAL TECHNOLOGY DEMONSTRATION PROJECTS AS WELL AS MARKET DEVELOPMENT ACTIVITIES, CONSISTING PRIMARILY OF MARKET RESEARCH AND OVERSEAS TRADE MISSIONS. THESE TRADE MISSIONS, IT SHOULD BE NOTED, WERE CONDUCTED WITH THE ASSISTANCE OF THE DEPARTMENT OF COMMERCE, AND WERE ORGANIZED MUCH LIKE THE MISSIONS ORGANIZED BY THAT AGENCY AND REFERRED TO PREVIOUSLY.

IN 1981, HOWEVER, THE DEPARTMENT OF ENERGY DISBANDED ITS INTERNATIONAL MARKET DEVELOPMENT EFFORTS ON BEHALF OF THE RENEWABLE ENERGY INDUSTRY. SINCE THAT TIME, THE DEPARTMENT HAS SUPPORTED THE INDUSTRY IN THIS AREA THROUGH AN INTERAGENCY MEMORANDUM OF UNDERSTANDING WITH THE DEPARTMENT OF COMMERCE. WITH FUNDS PROVIDED IT BY CONGRESS VIA THE ENERGY AND WATER DEVELOPMENT APPROPRIATIONS LEGISLATION, THE DEPARTMENT OF ENERGY HAS SUPPORTED EXPORT DEVELOPMENT ACTIVITIES CONDUCTED ON BEHALF OF THE RENEWABLE

ENERGY INDUSTRY BY THE COMMERCE DEPARTMENT, AND HAS SUPPORTED THE PARTICIPATION OF THE INDUSTRY IN COMMERCE DEPARTMENT EVENTS OVERSEAS.

MR. CHAIRMAN, THIS PARTICULAR INTERAGENCY EFFORT IS PROVIDING AN INDISPENSIBLE SERVICE TO THE U. S. RENEWABLE ENERGY INDUSTRY. THROUGH IT, FAR MORE U. S. FIRMS ARE ABLE TO PHYSICALLY MEET PROSPECTIVE FOREIGN CUSTOMERS THAT WOULD OTHERWISE BE POSSIBLE. AND THE RESULTS OF THE PROGRAM HAVE BEEN EXCELLENT. SINCE THE PROGRAM BEGAN IN 1982, COST SHARING ASSISTANCE PROVIDED TO U. S. RENEWABLE ENERGY FIRMS ATTENDING OVERSEAS EVENTS TOTALING ABOUT $190 THOUSAND, AND HAS MADE POSSIBLE PROJECTED SALES OF $14 1/2 MILLION. A 77:1 RATIO. IN ADDITION, THIS EFFORT WILL SUPPORT A DETAILED EXAMINATION OF THE ACTIVITIES AND POLICIES OF OUR LEADING INTERNATIONAL COMPETITORS IN THE RENEWABLE ENERGY FIELD, AND PRODUCTION OF A TECHNOLOGY PRIMER AND PRODUCT CATALOG TO FAMILIARIZE U. S. AND OTHER OVERSEAS PERSONNEL WITH THIS EMERGING PRODUCT AREA. AND IT WILL SUPPORT AN EFFORT TO IDENTIFY PRODUCT CLASSIFICATION CODES IN ORDER THAT WE CAN STATISTICALLY MONITOR THE PERFORMANCE OF THE U. S. RENEWABLE ENERGY INDUSTRY IN THE INTERNATIONAL MARKET.

PARENTHETICALLY, THE ADMINISTRATION HAS REQUESTED ONE HALF MILLION DOLLARS FOR FY 1985 TO CONTINUE THIS INTERAGENCY PROGRAM. LET ME JUST SAY NOW THAT I AM GRATIFIED BY THEIR SUPPORT AND THAT, ON BEHALF OF THE U. S. EXPORT COUNCIL FOR RENEWABLE ENERGY, I ENDORSE THEIR REQUEST.

OF THE INTERNATIONAL PROGRAMS I DESCRIBED ABOVE, THE AGENCY FOR INTERNATIONAL DEVELOPMENT HAS BEEN THE OTHER ONE MOST ACTIVE ON BEHALF OF THE USE OF RENEWABLE ENERGY PRODUCTS OVERSEAS. AID HAS CONDUCTED SEMINARS IN DEVELOPING COUNTRIES ON RENEWABLE ENERGY, AND HAS SUPPORTED TECHNOLOGY DEMONSTRATIONS. WHILE I DO NOT FEEL THAT ALL OF THEIR EFFORTS HAVE BEEN OPTIMALLY CONCEIVED TO LEAD TO COMMERCIAL ADOPTION OF RENEWABLE ENERGY SYSTEMS IN THE HOST COUNTRIES, I DO CERTAINLY APPLAUD THEIR RECOGNITION OF THE POTENTIAL OF RENEWABLE ENERGY TO CONTRIBUTE TO THE ECONOMIC DEVELOPMENT OF THEIR CLIENTS.

IN ADDITION, OTHERS OF THE INTERNATIONAL FINANCE PROGRAMS OUTLINED ABOVE ARE BEGINNING TO PROVIDE OPPORTUNITIES FOR THE U. S. RENEWABLE ENERGY INDUSTRY. THE EXPORT-IMPORT BANK, FOR EXAMPLE, HAS PROVIDED ASSISTANCE ON THE SALE OF A PHOTOVOLTAIC SYSTEM BY A U. S. FIRM TO ONE IN COLUMBIA. AND THE TRADE AND DEVELOPMENT PROGRAM HAS REVIEWED A PROPOSED FEASIBILITY STUDY FOR A RENEWABLE ENERGY PROJECT IN THE CARIBBEAN.

DESPITE THESE ENCOURAGING SIGNS, MR. CHAIRMAN, I BELIEVE THAT THERE IS MORE THAT WE CAN DO - AND SHOULD BE DOING - TO TAKE FULL

ADVANTAGE OF THE OPPORTUNITY BEFORE US IN THE WORLD RENEWABLE ENERGY MARKET. THE BILL BEFORE THIS SUBCOMMITTEE, H. R. 3169, TAKES POSITIVE STEPS IN THAT DIRECTION, AND I RECOMMEND IT TO YOU FOR THAT REASON.

THERE ARE TWO PRINCIPAL PROVISIONS IN H. R. 3169. THE FIRST WOULD REQUIRE THE DEPARTMENT OF COMMERCE TO CONDUCT AN ASSESSMENT OF THE INTERNATIONAL COMPETITIVENESS OF THE U. S. RENEWABLE ENERGY INDUSTRY AND, BASED ON THE RESULTS OF THAT ASSESSMENT, TO ESTABLISH AN EXPORT DEVELOPMENT PROGRAM IN THE RENEWABLE ENERGY AREA. THE SECOND PROVISION WOULD ESTABLISH AN INTERAGENCY WORKING GROUP ON RENEWABLE ENERGY EXPORTS, UNDER THE DIRECTION OF THE SECRETARY OF COMMERCE, TO FACILITATE BETTER COORDINATION AMONG THE VARIOUS INTERNATIONALLY FOCUSED PROGRAMS AFFECTING OVERSEAS APPLICATIONS OF RENEWABLE ENERGY.

THE FIRST PROVISION OF THIS BILL WOULD BASICALLY EXPAND ON THE EXISTING EFFORT BEING CONDUCTED BY THE DEPARTMENT OF COMMERCE ON BEHALF OF RENEWABLE ENERGY EXPORTS. SINCE 1981 THE DEPARTMENT HAS CONDUCTED EXPORT PROGRAMS FOR THE RENEWABLE ENERGY INDUSTRY SEPARATE FROM OTHER ENERGY INDUSTRIES. THIS WAS AN IMPORTANT DEVELOPMENT, BECAUSE IT ACKNOWLEDGED THE UNIQUENESS OF RENEWABLE ENERGY AS A PRODUCT AREA, BOTH IN TERMS OF ITS NEARLY UNIVERSAL APPLICABILITY AND ITS RELATIVELY DECENTRALIZED CHARACTER. AS I

STATED ABOVE, THIS PROGRAM, WITH THE SUPPORT FROM THE DEPARTMENT OF ENERGY, HAS BEEN VERY SUCCESSFUL. HOWEVER, I BELIEVE THAT MUCH MORE COULD BE ACCOMPLISHED IF THE LEVEL OF SUPPORT WITHIN THE DEPARTMENT OF COMMERCE WERE HIGHER. THIS IS THE OBJECTIVE OF THE FIRST SECTION OF H. R. 3169.

IT IS MY UNDERSTANDING THAT THE DEPARTMENT OF COMMERCE IS EMBARKING ON A COMPETITIVE ASSESSMENT OF THE RENEWABLE ENERGY INDUSTRY, WHICH WILL LEAD TO A REDEFINED EXPORT DEVELOPMENT EFFORT IN THE RENEWABLE ENERGY AREA. I WELCOME THIS EFFORT, AND CONGRATULATE THE DEPARTMENT ON IT. I AM NOT SURE, HOWEVER, WHETHER THIS IS PART OF AN OVERALL EFFORT TO ENHANCE U. S. INTERNATIONAL INDUSTRIAL COMPETITIVENESS, A RECOGNITION WITHIN THE DEPARTMENT OF THE POTENTIAL OF RENEWABLE ENERGY AS A WORLD MARKET OF SIGNIFICANCE TO THIS COUNTRY, OR A RESPONSE TO THE INTRODUCTION AND PASSAGE IN THE HOUSE OF REPRESENTATIVES OF THIS BILL. IN ANY EVENT, I FEEL THAT IT IS ENTIRELY APPROPRIATE FOR THE CONGRESS TO OFFER ITS OWN ENCOURAGEMENT TO THE DEPARTMENT ON THIS MATTER. AFTER HAVING DEVOTED A DECADE-LONG EFFORT TO THE DEVELOPMENT OF A WIDE RANGE OF RENEWABLE ENERGY TECHNOLOGIES, THE CONGRESS IS PERFECTLY QUALIFIED TO RECOGNIZE THE IMPORTANCE OF THE RENEWABLE ENERGY INDUSTRY TO THIS COUNTRY AND OF THE NEED TO INTEGRATE IT FULLY INTO THE NON-ENERGY PROGRAMS OF THIS GOVERNMENT. FOR THAT REASON, I URGE THE SUBCOMMITTEE - AND INDEED THE SENATE AS A WHOLE - TO

PROCEED WITH ACTION ON THIS SECTION OF H. R. 3169.

THE SECOND SECTION OF THE BILL CLEARLY BREAKS NEW GROUND IN ESTABLISHING AN INTERAGENCY WORKING GROUP ON RENEWABLE ENERGY EXPORTS. THIS WOULD REPRESENT A VERY SIGNIFICANT STEP TOWARD MEETING THE COMPETITION OF FOREIGN GOVERNMENTS AND INDUSTRIES, BECAUSE IT IS AN IDEA BASED ON OBSERVATION OF THEIR OWN APPROACHES.

AS I INDICATED EARLIER WHEN I DISCUSSED THE EXPORT DEVELOPMENT EFFORTS OF OUR OVERSEAS COMPETITORS, SUCCESS SOMETIMES RESULTS FROM THE COMBINATION OF MORE THAN ONE PROGRAM'S RESOURCES ON ONE PROJECT. THE BLENDING OF CONCESSIONAL AID MONIES WITH COMMERCIAL FINANCING CAN BRING DOWN THE OVERALL FINANCING COSTS OF A PARTICULAR PROJECT. AND I CAN TELL YOU, THE ABILITY TO OFFER ATTRACTIVE FINANCING IS PERHAPS THE GREATEST SINGLE FACTOR IN THE WORLD RENEWABLE ENERGY MARKET TODAY. CONGRESS RECOGNIZED THIS LAST YEAR, WHEN IT PASSED A MIXED CREDIT PROGRAM AS PART OF THE EXPORT-IMPORT BANK ACT AMENDMENTS OF 1983. IT IS MY UNDERSTANDING THAT NO APPROPRIATIONS WERE ACTUALLY MADE FROM WHICH THE AGENCY FOR INTERNATIONAL DEVELOPMENT MIGHT DRAW CONCESSIONAL FUNDS FOR THE PROGRAM, AND THAT THE EVENTUAL FORM OF THE PROGRAM IS AS YET UNDETERMINED. IT IS NEVERTHELESS, AN IMPORTANT PRECEDENT AS A RESPONSE TO THE REALITIES OF THE INTERNATIONAL MARKETPLACE. IT IS

IMPORTANT AS AN EXAMPLE OF INTERAGENCY COOPERATION, THE KIND OF COOPERATION THAT MIGHT BETTER RESULT FROM THE COMMUNICATIONS AND WORKING RELATIONSHIPS GROWING OUT OF AN INTERAGENCY WORKING GROUP ON RENEWABLE ENERGY EXPORTS.

IN ADDITION TO FACILITATING COOPERATION BETWEEN INTERNATIONAL PROGRAMS IN THE RENEWABLE ENERGY AREA, AN INTERAGENCY WORKING GROUP WOULD PROVIDE AN EXCELLENT MEANS FOR DISSEMINATING INFORMATION ON THE TECHNOLOGIES, THE MARKETS, AND THE U. S. INDUSTRY ITSELF. ANOTHER DIFFICULTY ENCOUNTERED BY THE INDUSTRY IN ITS EFFORTS TO USE INTERNATIONAL PROGRAMS IS THE LACK OF FAMILIARITY WITH RENEWABLE ENERGY TECHNOLOGIES ON THE PART OF THE PROGRAM'S STAFFS. SIMILARLY, A LACK OF AWARENESS ABOUT THE INDUSTRY ITSELF AND THE STATE OF ITS DEVELOPMENT OF INTERNATIONAL MARKETS CONTRIBUTES TO CONFUSION OR COUNTERPRODUCTIVE ACTIVITIES IN SOME INSTANCES. AN INTERAGENCY WORKING GROUP WOULD PROVIDE AN EXCELLENT MEANS FOR DISSEMINATING VALUABLE INFORMATION TO EVERYONE INVOLVED IN THE APPLICATION OF U. S. RENEWABLE ENERGY PRODUCTS OVERSEAS. I STRONGLY URGE YOU, MR. CHAIRMAN, TO ACT AFFIRMATIVELY ON THIS ISSUE AS WELL.

AGAIN, I WANT TO THANK YOU FOR THE OPPORTUNITY TO ADDRESS THE U. S. RENEWABLE ENERGY INDUSTRY'S ROLE IN THE INTERNATIONAL MARKET, AND THE ASSISTANCE OFFERED TO IT BY H. R. 3169. CONSIDERING THE RATE OF GROWTH WE ARE ALREADY EXPERIENCING IN THIS MARKET, THE ALMOST UNLIMITED EXTENT TO WHICH IT MIGHT GROW IN THE FUTURE, AND THE KIND OF COMPETITION WE ARE ALREADY RECEIVING FROM OVERSEAS, H. R. 3169 OFFERS VALUABLE ASSISTANCE IN AN IMPORTANT POLICY DIRECTION. I URGE THE SUBCOMMITTEE TO TAKE PROMPT AND FAVORABLE ACTION ON IT.

Senator. **Hatfield**. Thank you, Mr. Mayfield.

I think we will complete the panel before I get into questions.

Mr. Mulqueen.

STATEMENT OF HERBERT J. MULQUEEN, JR., PRESIDENT, CHH TECHNOLOGIES, INC.

Mr. **Mulqueen**. CHH is a small company, under 10 people, that has invented a wood-burner that burns sawdust, chips, coconut shells, peanut shells, and so forth.

This burner is designed to replace existing oil or gas-fired burners on 75 percent of the industrial boilers in the United States, and probably 90 percent of the boilers outside the United States.

There are 23 burners in operation, from Washington State to North Carolina, in greenhouses, alcohol plants, food processing, tire recappers, schools, and U.S. housing projects. Some of them have been working over 3 years, 24 hours a day, 360 days a year.

This burner has been reviewed, inspected, dissected, and so forth, by the Mitre Corp. in McLean, World Bank, InterAmerican Development Bank, Earth Scan, Arthur D. Little, Sears Testing Laboratories, Heiniken Technical out of Amsterdam, and Ultrasystems, and the list goes on. As a group, all of them have said it's probably the best in the world, easiest to run and maintain, and it's commercially viable with extremely fast paybacks.

We have had personal visits from Sweden, Belgium, Germany, France, England, Argentina, and it goes on, to Papua, New Guinea, Guatemala—it goes on, Tasmania, and Australia.

We have had letters and phone calls from probably 30 countries, and last week we got calls from Tunbau, Sweden, Lagos, Nigeria, and Horree, Zimbabwe—I can't find it on the map, but that's where he said he was from.

My partners and I have have spent over $500,000 of our own personal money on the development of our burner. We are now at the point of having probably the best woodburner in the world and no money to market it. We worry about payroll on Fridays.

Now, what the Department of Commerce has done for CHH, because of the Department of Commerce's technical trade seminar and the support that we have gotten from them, we're in the final details this week, as a matter of fact, probably of a $2 to $3 million deal in the Philippines. And we didn't want to go to the Philippines. We were kind of pressured by the Department of Commerce to go. They said you have got to go. You have got the best product. And we said we don't have the money to go. So it was one of those things. But after 18 months, it looks like a $3 million deal is coming about because of this technical trade seminar that we went to.

No. 2. The phone calls last week were in response to a film that the Department of Commerce did on our product. We got this request from overseas. They distributed them to 75 industries.

And also, the Department of Commerce paid for a booth at the Asia Energy Show in Singapore last—I guess it was last September.

Now, they told me to tell you about some foreign competition. The Government of Papua, New Guinea, hired the Mitre Corp. in

McLean to do a study on woodburning applications for industrial applications.

After the report was issued, we were considered head and shoulders over our competition. The industrial user actually is the South Pacific Brewery in Lae, New Guinea, which is a Heiniken brewery subsidiary, sent their plant manager and their plant engineer from Papua, New Guinea, to Warsaw, Va., and the Heiniken technical people from Amsterdam came over—heavy stuff for little Warsaw, Va., and they said "We want your burner."

And the only competition we had was an Australian firm. And what happened was that the Australians gave them a grant and they got a free burner. So the result of that was no sale in one of the heaviest wooded industry areas in the South Pacific. We had no market penetration, and I didn't get a sale. That takes care of that one.

I think that you should hire more people at the Department of Commerce. I heard the Deputy Assistant Secretary say they had lots of money, but it looks to me like the Department of Commerce has a one-armed paperhanger down there that seems to work 12 hours a day; works Saturdays and Sundays. I know that, because he calls me on them.

I would enlarge his budget to get more people down there. I'd make more movies, because they're cheap marketing things, and the technical seminars and trade shows. Also, I'd promote products to make economic sense in the foreign communities.

I've got some comments I really can make about AID and the Department of Energy, but I don't know if you would want to hear them now or not.

AID seems to be interested in making studies. This whole town seems to be awash of paper. Probably half the people in here are consultants.

AID seems to make studies, but they never seem to get demonstration projects going. The problem with AID is they hate to have a failure, which is probably Mr. Hatfield's problem, because when they have a failure he jumps on them.

But it really is a problem, because all they want to do is study the problem.

Now, I have been to Thailand, Indonesia, the Philippines, and I met a man that did an AID study in Thailand, he did an AID study in Costa Rica, and he did an AID study in the Philippines. And I said how much oil did you replace? He said, I don't know, just making studies. I could tell them that the oil is causing Thailand, Costa Rica and the Philippines a problem. You don't have to—a study never loses. You never have a bad study, it's just a study.

So I would recommend that you have some demonstration projects where you get the American equipment over there and demonstrate that we can save people oil.

Now, as for the Department of Energy. The Department of Energy seems to be interested in like all the GTE type of stuff on top a mountain for communication stuff. Notice that I said my customers are food processors, tire recappers, schools, fabric mills. They're not very esoteric. They don't really do very much for consultant people, but they do use a lot of oil. We have customers that saved 600,000 gallons the first year of operation with two of our burners, and they bought two more. So that's where it counts.

People have a lot of oil, and they're going bankrupt because of it. People are really hurting on oil, especially in the Philippines where it's like $1.48 a gallon and places like that.

I apologize for being kind of rough on this report, but I was called Tuesday night to come to this meeting.

Senator **Hatfield**. Thank you, Mr. Mulqueen.

Mr. Enfield.

STATEMENT OF SAMUEL E. ENFIELD, EXECUTIVE DIRECTOR, EXPORT COUNCIL ON RENEWABLE ENERGY, ON BEHALF OF ROBERT HAYDEN

Mr. **Enfield**. Thank you, Mr. Chairman.

Before discussing H.R. 3169, I just want to make mention of the industry's appreciation of your support over the last few years through the energy and water development process of the Energy Department's ability to assist the industry's participation in the Commerce Department's international market development activities. That alone, I think, has been an extremely successful effort and has meant a lot to companies like Mr. Mulqueen's, and enabled them to participate more broadly in international marketing than otherwise would have been possible. And I think that Miss Fitzpatrick gave some indication of the overall success of that effort.

With respect to H.R. 3169, I listened with interest to Mr. Phillips' comments on the Department's plans in the renewable energy area, and I welcome the development of effort in that direction.

I think that the genesis of the idea of the first part of this bill, the export development program at the Department of Commerce, came about in response to a perception that I don't think was peculiar to this industry, that the Department of Commerce tended to serve established industries more than it did emerging industries. So I think the recommendations that turned into this bill were an effort on our part to raise the perception of the value of renewable energy within the Department of Commerce.

I know that one of our leading competitors in this area, Japan, gets a lot of credit for identifying potential and developing industry areas, putting resources to work early on in the process to develop a market share in those industries, and then benefiting as those industries do mature.

And I think that's something that we have seen happening in renewable energy as well. There's been plenty of discussion of the increased competition from Japan. So we endeavored to try to raise the importance and the amount of resources devoted to international market development of renewable energy to try to avoid a repetition of that situation in this industry.

At any rate, I am encouraged by the movement of the Department of Commerce in this direction. I think, I guess to be frank, I see some of it occurring since the introduction of H.R. 3169 last year. So I think that was an element.

I also think that to a certain extent, much of their success of the Commerce Department program—and it is considerable—is based on the quality of the staff we have worked with, which Mr. Mulqueen alluded to; the interest of the industry in taking advantage of the program, the interest in the markets and in renewable energy technology, and it is considerable. And I think regard for U.S. technology is still considerable.

And then finally, the amount of support provided through the Department of Energy to assist companies participating.

At any rate, I do welcome the increased emphasis in this area at the Department and really look forward to working with them.

I will second Mr. Mulqueen's comment, however, one of the things that I hope results from it is an increased emphasis in, really in the staff area in the renewable energy program.

I think there's as much to do as we can do, and I think that the potential of the market down the road suggests that we should—we could perhaps use a little more staff resource there.

With respect to the interagency working group, I do think that this introduces a substantially new element to this current situation. And on that point I guess I do want to disgree with the Departments. Here again, this is—Mr. Hayden, on whose behalf I'm appearing, listed in his testimony a number of international programs in the renewable—well, not specifically in the renewable energy area—they've been alluded to before, and I won't catalog them, but we have an impressive array of programs to address, both commercial and developing country markets and provide all sorts of support to—either to the nations looking to adopt new technologies or to the industry looking to market.

And I don't really have any complaint with the range and the—or the amount of funding, I suppose. What the proposal before us would accomplish I think is better coordination between those agencies. And you have discussed it as though you have a feeling for the difficulty in coordinating among various programs, and I have seen it in my work.

I think we see again in our competitor nations a more aggressive coordination of various programs to address international markets; perhaps a feasibility study program feeding into a development grant program, more concertedly, more coordinatedly, more efficiently, and gets things done more quickly. And I think that's a direction we want to move in.

I don't presume to want to alter the mandates of these various programs. They're all legitimate, they do their jobs, and they focus on their jobs, and I don't really want to presume to manipulate that. I would like—I think this bill could improve the situation by setting up a situation in which they can work on their own together in a more effective fashion. And I would hope that, really in a voluntary sense, more effective cooperation could result.

I think it would also provide a network by which more current technological information, such as Mr. Mayfield suggested, could be passed around to the various staff people at these programs, and a network that the industry could use to spread information about the markets.

I think there are always concerns about the efficacy about some agency programs and whether they are realistically oriented to the markets as they currently exist. And I think an interagency working group would allow industry to really educate the program people as to the reality of the markets they see.

And I think the level I would really see this happening, although I welcome the cabinet level leadership, I think the real value is in establishing contacts at the staff level that are serviced regularly by information flow and by meetings.

A personal anecdote. I sat in a meeting a couple of weeks ago with a staffer at the trade and development program who had just taken over his position from another person, had a proposal quite completely worked out for a solar project in Central America. However, this individual was unfamiliar and really somewhat skeptical of solar technology, had not been exposed to it; whereby, his predecessor had been fully educated as to the viability of the technology. I think because of the skepticism that proposal was lying on the table. And basically, I think the opportunity may have been lost because some other countries were not waiting.

I think the ability of a person like that to have access to information readily from the Department of Energy, from industry, through a person in his own agency, I think, would be a very valuable addition, and I think that's the kind of improvement that the interagency working group could offer.

I actually think a concept like this is valid in any area. I think practical staff coordination is valuable. I think, however, in an area like renewable energy it's particularly important, because the industry is new, the technologies are emerging, the familiarity with the technologies is simply not very widespread, and so I think for that reason this may be an interesting area to begin an effort like this. Although I think it may have value in a lot of other areas down the road.

Thank you very much.

[The prepared statement of Mr. Hayden follows:]

Renewable Energy Institute

Statement of
Robert Hayden
Executive Director
Renewable Energy Institute

before the

Subcommittee on Energy Conservation
and Supply

of the

Committee on Energy and Natural Resources
U.S. Senate

on H.R. 3169
Renewable Energy Export Programs

March 8, 1984

Statement of Renewable Energy Institute
on
H.R. 3169 -- Renewable Energy Export Programs

Mr. Chairman, thank you for this opportunity to discuss the provisions of H.R. 3169, dealing with Renewable Energy Export Programs.

I am Robert Hayden, Executive Director of the Renewable Energy Institute. The Institute is a private, nonprofit organization that conducts policy research and educational activities on matters affecting solar, wind, biomass, and other renewable energy technologies.

My comments on the legislation will focus primarily on the bill's provision calling for the establishment of an interagency working group. The purpose of the proposed interagency group is to coordinate programs of several federal agencies that could assist overseas marketing of renewable energy systems. This process for coordination of government programs could result in a particularly valuable tool for U.S. renewable energy companies who must compete in developing country markets with European and Japanese firms who receive very effective government support in their overseas marketing.

State of the Industry

First, however, I would like to describe briefly the remarkable technological progress made in the past few years by the renewable energy industry. These alternative energy technologies are now providing far more energy in the United States than many people realize, and they offer great potential for other parts of the world as well. For instance, in the United States:

- o Installation of active solar heating and cooling systems total nearly 700,000 in the U.S. today with 1983 gross sales approaching $700 million. Gross sales in 1975 amounted to only $17 million.

- Photovoltaics, the direct conversion of sunlight into electricity, has experienced a 400% increase in efficiency and a five fold decrease in module costs over the past decade. Current installed capacity amounts to over 23 MW, with the majority having come on-line in the past two years. Applications have evolved from remote siting to utility scale power generation facilities. For example, a 100 MW central station photovoltaic project is planned to begin in 1984.
- A government sponsored demonstration program has successfully established the world's largest (10 MW) solar thermal central receiver power plant in the southern California desert. A privately financed project is now being planned for a similar system to generate 100 MW of electricity. Two other privately financed solar thermal projects are now underway — the world's largest solar pond system and the world's largest parabolic trough system. The two projects will supply Southern California Edison with more than 60 MW electricity, enough to satisfy the demand of 30,000-35,000 homes.
- Passive solar construction of residential and commercial buildings has been increasing steadily in recent years. The National Association of Home Builders estimates that by 1986, 5% of the new homes being built (approximately 50,000 homes annually) will be of passive solar design.
- Approximately 230 MW of wind power capacity from wind farms has been installed in the U.S. over the past three years, mostly in California. In addition, the two largest utilities in California have signed contracts that will result in another 1,000 MW of wind-generated electricity from wind farms, enough to meet the demands of over a half million homes.
- U.S. production of alcohol fuel from renewable feedstock capacity grew from 105 million gallons in 1981 to 400 million gallons in 1983. Used as an octane enhancer for gasoline, this represents 4 billion gallons of fuel ethanol or 4% of the nation's gasoline market in 1983.

Export Market

It is widely felt that developing countries offer a vast potential market for many of these same renewable energy technologies and applications. The massive drain that oil imports place on foreign exchange holdings of most developing countries makes indigenous energy production, such as renewable energy, particularly important for them. At the same time, the general lack of extensive electric energy grid systems in developing countries makes the decentralized nature of renewable energy systems attractive both in terms of their cost effectiveness and in terms of the countries' rural development needs.

Most of the export activity in renewable energy thus far has been in the photovoltaic product line (solar electric cells). There has been increasing interest, however, in trade opportunities for wind, biomass, and solar thermal technologies. Overseas sales have consistantly accounted for about one-half of U.S. photovoltaic production, even though the U.S. share of the world photovoltaic market has dropped from 70% in 1980 to approximately 60%. It is commonly projected that the total world market for photovoltaics will approach $1 billion by 1990, and the potential for other renewable technologies adds a considerable amount to that figure.

Despite the clear lead the U.S. has had in developing renewable energy technologies, developing the U.S. share of the world market will not come easily. Government-assisted competitors from some European countries and Japan have already demonstrated an interest and effectiveness in entering the Third World renewable energy market. Moreover, much of the U.S. renewable energy industry is characterized by small and medium size companies that have no experience in overseas marketing, and are ill-equipped to deal with the complexities and expense involved.

Marketing in developing countries is not an endeavor to be entered into lightly. It requires a strong commitment of time, effort and resources, has high elements of risk and frustration, and requires the ability to work cooperatively with the host government. This is particularly true for renewable energy as the critical relationship of energy to economic development often leads to close attention from the host government, which is often a complicating factor rather than a benefit. In addition, the technologies are often viewed by host governments as unproven. Another difficulty is that, while long term operational costs are very low, the relatively high initial capital costs of renewable energy systems is a problem for developing countries that more often than not face acute shortages of foreign exchange.

In addition, exporters of renewable energy products must be prepared for the fact that many developing countries prefer technology transfer to enable local production, as opposed to importing products from the U.S. or elsewhere.

The complex nature of building a trading relationship in other countries is shown graphically in a series of reports on trade and investment laws in developing countries compiled by the Renewable Energy Institute. We have completed reports on six developing countries. For the Committee's interest, I am submitting with this testimony a copy of the Trade and Investment Law Report for India.

Interagency Working Group

Over the past several years the Renewable Energy Institute has worked with trade associations representing the various renewable energy technologies to establish the Export Council for Renewable Energy (ECRE). A primary purpose of ECRE is to provide a common voice through which these numerous technology groups can communicate with government programs which could assist in international marketing.

It has become apparent, however, that the government programs themselves have no effective means of communicating with one another to coordinate their efforts with regard to renewable energy. There is a surprisingly large number of federal government programs outside of the Department of Energy that have the potential for offering renewable energy companies help in one form or another in overseas marketing. From the perspective of a company interested in foreign commerce, though, these programs are maddeningly disjointed.

The Commerce Department offers a wide range of programs, including market research, foreign buyer identification, and overseas trade missions. Other government agencies that have or could have applicable programs include:

The Agency for International Development (AID) provides opportunites for overseas sales through project-related procurement, and potentially through channels being established in the Office for Private Enterprise. It is important to acknowledge that AID does not have export promotion as part of its mandate. AID's mission is host-country economic development, not U.S. business development. Yet there obviously are points at which the two interests intersect, particularly with renewable energy, and AID can thus be an important vehicle for market entry in developing countries.

The Export-Import Bank offers programs to help finance overseas sales that could be crucially important for many renewable energy projects. Through direct loans, loan guarantees, and insurance, Ex-Im can sometimes be effective in countering the attractive export credits other industrial countries provide as an inducement for purchase of their exports.

The Trade and Development Program (TDP) is designed to serve the dual purpose of supporting U.S. exports to developing countries and of supporting projects that are important for economic development in the host countries. TDP's primary program for achieving this dual purpose is the funding of feasability studies for projects in developing countries. The agency will fund feasability work for projects that meet development objectives and which also have a high likelihood of follow-on purchase of U.S. goods and services. Renewable energy projects would seem to fit perfectly into TDP's dual mandate.

Other industrial nations are very adept at using the type of services provided by TDP in nurturing their export markets in developing countries. TDP could be very effective in preventing a competitive disadvantage to U.S. renewable energy firms.

The Overseas Private Investment Corporation (OPIC) is designed to facilitate developmentally-sound U.S. investments in developing countries, primarily through political risk insurance, but also through direct lending and other services. As with the Trade and Development Program, OPIC could play an important role in facilitating the presence of U.S. renewable energy companies in developing country markets, particularly as those countries increasingly seek local-value-added investments rather than direct sales from developed nations.

Taken together, these agencies would seem to offer an impressive array of programs that could be very effective in countering the type of government-assisted competition renewable energy companies have already found in developing-country markets, and are likely to continue to face. The collective, potential benefit of these programs has not materialized, however. The inter-agency working group, as proposed in H.R. 3169, could address at least two of the problems that have impeded the helpfulness of the programs from the standpoint of renewable energy. These two problems are lack of coordination and lack of focus on renewable energy.

Because there currently is no coordinating mechanism for the agencies listed above, no concerted consideration is given to ways in which the various programs might be used to support one another, either in long term market-building strategies or on individual renewable energy projects. Conceivably, "packages" could be assembled for renewable energy projects using components of programs from, for instance, the Commerce Department, Export-Import, Trade and Development Program, and perhaps even AID.

The lack of a coordinated approach is compounded by the lack of a focus on renewable energy. Few -- if any -- of the government programs are doing as much individually for renewable energy as they could. Among export-promoting agencies, none has had a conscious focus on renewable energy except the Commerce Department's Export Development Program within International Trade Administration. Among the Third World development agencies, AID has had some specific programs addressing renewable energy in developing countries, but the Trade and Development Program and OPIC have done little with renewable energy projects. Within AID, however, there has been little effort to recognize and maximize the benefit U.S. exporting companies can obtain from the agency's development programs. The U.S. has traditionally shunned a linkage between "trade and aid" while our trading partners have exploited the connection.

The proposed interagency working group could be an affective means of addressing these shortcomings. The legislation calls for the following agencies to be represented on the interagency body: State Department, Energy Department, Commerce Department, AID, Export-Import Bank, Trade and Development Program, OPIC, Small Business Administration, and the Treasury Department's representatives to the multilateral development banks.

Placing a single, cabinet-level official in charge of the interagency group, provided in H.R. 3169, will help assure that each of the agencies on the working group will give serious attention to how their programs might be better tailored to renewable energy projects. The interagency group will also require all of the agencies to consider systematic means by which their programs might be made to work more effectively and efficiently in coordination with one another. Another important benefit of the interagency group mechanism is simply the increased understanding of the various programs that representatives on the group will gain. This in turn will permit program officers to be more helpful in steering companies who are seeking help to the most appropriate agencies, and perhaps lead to creative packaging of several otherwise independent programs on a project-by-project basis.

There has been increasing awareness that the United States needs to establish modern trade programs and strategies in order for U.S. companies to be able to compete effectively in today's international marketing environment. Renewable energy offers a unique chance to use new approaches quickly and at an opportune time. The industry is relatively small, but with great growth potential, and its products are of stategic importance to the U.S. and to developing countries. The proposed interagency working group offers a constructive first step in forming a coordinated trade strategy for this important sector.

Senator **Hatfield**. Thank you, Mr. Enfield.

Let me delineate between, for just a moment, the act of promotional efforts you're calling for and the information that may be available to assist you in the marketing of your services and products.

Would you gentlemen know precisely where to contact the Federal Government to gain information at this time relating to your industry and its international trade potential?

Mr. **Mulqueen**. No.

Senator **Hatfield**. You would not.

Mr. Mayfield.

Mr. **Mayfield**. Fortunately for myself, representing my company, yes, I do; but it took a long, drawn-out time.

Again, I probably have more resources than most of the industry representatives in the renewable energy segment. Now there again, I'm speaking for myself and my company. I have found as representative though for the Export Council for Renewable Energy that more and more of our members are saying help, they do not know where to go.

Now, we ourselves, as ECRI, are trying to help this, but, again it is very fragmented because of the different agencies with their different resources, their different planning, to be able to then go to each one and try to piece this together.

Senator **Hatfield**. Mr. Enfield.

Mr. **Enfield**. Well, I've got a couple of places I would go. SERI, Solar Energy Research Institute, conducted international market research previous to 1981. Some of that material is still useful, I think. Secondarily, the Commerce Department does conduct market research. Although, to my knowledge, it has not been conducted to a substantial degree in this area. That's about it, as far as I know.

Mr. **Mulqueen**. Can I add something?

Senator **Hatfield**. Yes, Mr. Mulqueen.

Mr. Mulqueen. Most small firms—I think the reason I was called Tuesday night was that I'm a representative of the renewable energy field. We don't have the money. I'm a 2½-hour drive from Washington, D.C., so I can just leave at 6:30 in the morning and get up here. But most people, if they're in Boulder, Colo., or New Hampshire, can't even afford to come down here. We're talking very small firms. I mean Martin Marietta, even though they got dragged around a couple of years ago, they have some money and they have somebody down here. But small firms can't do it. It just so happens that most of the small firms have all the good ideas, and they can't afford to come down here. I can't afford to—I tell you how our international marketing works. We might get five inquiries, and we put a little mailer in the envelop and send it. Then somebody from Lagos, Nigeria, calls up and says can you put something in a DHL pouch and send it to us? And we go, huh, that's $64, and that's the extent of our marketing. I get the chairman of the board of Salem Tobacco Co., which is the largest corporation in Sri Lanka say can you please come down here? I can't afford to make the airline flight. Then somebody else says—that's where really the crunch comes to bear. It's really down to, do I send a pouch to Lagos, Nigeria, or do I make payroll this weekend?

I don't think really small firms can go through wading through all the bureaucratic tape that it takes to get something done around here. It costs a lot of money.

Mr. Mayfield here, he's a professional, you might say, a Washingtonian professional, and that's what his job is really in a way. But small firms don't have a professional down here that can wade through the paperwork for them.

Senator Hatfield. How many people do you employ, Mr. Mulqueen?

Mr. Mulqueen. About 10.

Senator Hatfield. Mr. Mayfield, would you describe a little bit more the council that you represent as far as what is the character of those members within your council in terms of numbers of employees? Would you just describe that a little bit more.

Mr. Mayfield. Yes, I'd be glad to.

Approximately, oh, a year and a half ago we were in a quandry as to trying to work in the international market.

As we all are aware, a great percentage of the renewable energy business we're looking for international sales. I think it is encouraged by both our Government as well as we are knowledgeable ourselves that there is a vast market there.

In dealing with the Department of Commerce, they, as well as ourselves in the industry, were finding that it was growing harder and harder by the moment to deal on an individual basis within Commerce or the DOE. So it was decided to form an entity that would be the buffer or the dissimulater between the Government agencies, such as Commerce, and the industry. So this is when the United States Export Council for Renewable Energy was formed.

As you can see by our letterhead on the testimony presented, we have several organizations that range from the Air-Conditioning Refrigeration Institute, to American Wind Energy Association. These are all associations within their own industry that have memberships. Those memberships will range from a small number of maybe 50 companies up to several hundred companies, such as the Solar Energy Industry Association. They in turn work with us and sit on the board of ECRI in which I am happy to be chairman. We decide how we should work with commerce, how we should disseminate the information coming from Commerce, DOE, or any other agencies that are dealing with the export trade industry so that our members can hopefully retain and have information and have a central place to go.

We have received contracts at this time, as was alluded to earlier by the Assistant Secretary of Commerce, to where we can do studies as to competition; what is our world competition, how is the other governments who are well in place in international marketing supporting their industries. We are now involved in that, we look to do others, so that then we can disseminate it back out to our membership.

Senator **Hatfield**. Now, your council as I understand it is a confederation of other councils.

Mr. **Mayfield**. That's correct.

Senator **Hatfield**. Well, give me the lowest part of that component structure, what are the typical members, what's the characteristics of the typical members of those associations of which you are the coordinator of the council?

Mr. **Mayfield**. Could I turn this over to my executive director?

Senator **Hatfield**. Yes. Are they small, medium size, large, that's what I'm trying to get at.

Mr. **Enfield**. Are you speaking of the firms or the trade associations?

Senator **Hatfield**. I'm talking about the individual firms who are members of those associations of which the council is the coordinator of such associations.

Mr. **Enfield**. They range from very, very small to substantial. Although I think the small companies predominate. And even in areas where a large company has a subsidiary that's—or a branch that's involved in renewable energy, beit wind or solar, oftentimes those subsidiaries are not terribly heavily capitalized, and life for them in a day-to-day sense is very much like life for a small company.

Even some of the photovoltaic companies owned by oil companies don't have tremendously deep pockets in terms of marketing money and for whom life is somewhat like a small business.

There are exceptions. There are companies that are well capitalized, but they are by far in the minority. It's predominently a small business industry.

Senator **Hatfield**. So Mr. Mulqueen's company would be a very typical one of these members who are part of associations a part of the council?

Mr. **Mayfield**. Absolutely, very typical.

Senator **Hatfield**. So obviously then, No. 1, none of these companies are capitalized sufficiently to engage in individual promotion, individual distribution and so forth to these various countries in the world, and that's why we need some kind of undergirding here for that purpose, such as is incorporated in this bill.

Mr. **Mayfield**. That's correct, Mr. Chairman.

Senator **Hatfield**. Now, is it true in your industry, like it is in many other industries, that a major portion of your new innovations, inventions, patents, have developed out of such small companies?

Mr. **Mayfield**. I would say yes, Mr. Chairman. Some of your higher tech type things have resulted from possible research and development from DOE through Sandee and some of their agencies, but——

Senator **Hatfield**. But the commercialization has been out of the spinoffs from that research in small enterprises?

Mr. **Mayfield**. That's correct. That's correct.

Senator **Hatfield**. And is it true that in your industry, as it is in most other industries, that new employment, new job opportunities are going to eminate out of these small enterprises rather than out of the Fortune 500?

Mr. **Mayfield**. Absolutely.

Senator **Hatfield**. So then we're looking at the contribution to new inventions, to modifications and other such improvements that come out of the technology of such industry. We're looking at the job potential of such industry has to contribute to our Nation. And then we're looking at the market, where that can be all distributed and sold. So becomes then another facet to this whole thing, as I'm describing it, in relation to the balance of trade problems this country has, $69 billion deficit last year, $20 maybe this year. So all these factors represent then again the important role that your individual small company, Mr. Mulqueen, the various components of your associations, Mr. Mayfield, and yours, Mr. Enfield, contribute to the overall economic health of this country. Is that an accurate assessment?

Mr. **Mayfield**. That's correct.

Senator **Hatfield**. From new inventions, technology, from new jobs, and from increasing our export trade.

Mr. **Mayfield**. That's what we're looking to trying to do, Mr. Chairman. ECRI is so small itself, even though we represent a lot of members, that we do not charge our member companies dues to perform this function. It is a function that is being formed and done basically with members who are in the industry and want to see it to go forward. The only monies that are coming in to support us are those contracts that we're actually doing for different government agencies at this time.

Senator **Hatfield**. All right. So, in effect, we could say that you're not here looking for a subsidy, you're here looking for an opportunity to create new jobs, to help improve our balance of trade deficit, and many other things. And what we're looking at is what we could call a legitimate role of the Federal Government in its own self-interest in terms of an influence maker in the national economy and future economy, to help in coordinating information that's important to you in the marketing process, in the spread of new technology and in the promotion of the products that you represent.

Now, we're living in a different world, too, than we were perhaps in the 1920's which I referred to earlier on, although this was very much a part of the whole Commerce Department's efforts in the 1920's. We're looking at a situation today, too, in which other governments of the world in that international market are doing precisely these things to the advantage of their own domestic producers. In many instances those domestic producers are not small enterprises, but they are large enterprise, which is either franchised by the government or have other subsidies by the government.

Mr. Mulqueen, you add one dimension to the promotional effort, and that is pilot projects and demonstration projects.

Mr. **Mulqueen**. Let's say you're from Thailand or the Philippines or any of the Asian countries, and they say have you a burner anywhere, is there any place we can see it? Can we see it in Indonesia, can we see it in Thailand or Singapore? You say nope. Got one in Seattle, Wash. And they say, little far. You say how about North Carolina? Little farther again. They say maybe if I'm in Washington, D.C. I'll stop by. But if you have a demonstration project in the Philippines, they'll go to the Philippines.

The problem is, AIDS does a study for $2 million or $3 million to say that the Philippinos need something to reduce oil. It doesn't help the Philippinos reduce oil and we don't have a project over there that they can see, but we have a nice study. That's the problem. And we need a demonstration project.

The other thing is, I think small firms can't do international marketing. That's it. They just can't afford the trip, they can't afford. So how do we get our exports out there? One of the things that just happened last year which I thought was terrific was a 5-minute film. They went to one of our customers—he's an oil company. The guy came out with a white patent leather belt and looked like a Baptist preacher, and he said, I saved 600,000 gallons of fuel oil last year and I bought four more. I'm going to save a lot of money.

Now, that film went all around the world. Now if we made a bigger film that says here's all the nuts and bolts to it—you can have a teaser film and you can have a heavy duty film. That would do a lot of marketing. And people would say I want that photovoltaic cell on top of a mountain top, or I want that photovoltaic cell running a refrigerator in Guayana to hold medicine, or I want that biomass burner burning coconut shells that saves me millions of gallons of oil.

Now, the Philippine Government is going after 3,000 of our burners eventually. They're talking hundreds of millions of gallons of oil. They're going to have a national policy around our burner, and it's because of this commerce seminar that I went over to, I mean it started it off. And I went fighting and kicking, because I didn't want to go over there because I knew nothing was going to come out for 2 years, and that's a lot of money to put out. We've had four trips over to the Philippines and there's not been $1 from it yet, but it's very close.

Senator **Hatfield**. Have developed a reforce station in the Philippines——

Mr. **Mulqueen**. Excuse me. I know what the Tintaka people over at the Philippine Seed Bank want; I finally had a meeting with Mr. Tintaka of the seed bank at 11:30 p.m. They really want to save oil. But nobody wants to get the first burner. Nobody wants the first one. You have to have something over there, and it's been this long.

Senator **Hatfield**. They have concluded a trade agreement with PRC to provide all the wood that they could produce. They have a specie now that has a 5 to 6-year growing cycle, and they can produce that on—and in their land distribution program, as you know, a hector of land to each family, they can then enforce that and have a cycle of income not only from the burners that you're talking about, but also from the export to PRC, which is going to buy all that they can produce, because they recognize in China as well they've got to get off this fossil fuel dependency as well, and if they can develop a raw material in that kind of a growing cycle there's a whole new revolution out there that can occur.

Mr. **Mulqueen**. Well, first of all, the Philippine Government met me on the last trip, met me at the airport, limousine into town and everything else like that. They're going to have a national policy to reduce oil. And right now the coconut waste will do 70 percent of their industrial needs.

Senator **Hatfield**. You know, this is also another example between your large corporation and your small enterprise that you represent. I had a very interesting conversation with Mr. Saharto in Indonesia last January. Senator Eagleton and I were there. And he was indicating the kind of attitude that so many of the large American corporations have when they come out to try to create some business. He said General Motors came out here and tried to sell us trucks that they already were manufacturing, and ignoring the fact that we have pretty narrow roads. The Japanese came out here, surveyed our particular situation, designed a narrow-bed truck. So we have all Japanese trucks instead of General Motors.

Mr. **Mulqueen**. That's right.

Senator **Hatfield**. Now what you're saying is that you have surveyed the situation in your particular industry and you see what their resource is, you see what their potential is, and you can manufacture something that will fit their need.

Mr. **Mulqueen**. And they're going to manufacture it in the Philippines eventually.

Senator **Hatfield**. There's another distinction though between the flexibility of a small enterprise. We had, you know, in my State major lumber producers. For years our producers went out to Asia and elsewhere in the world trying to sell the product they had already designed, already standardized and what have you into their markets.

We had a small enterprise timber producer in Portland who decided it was about time to go out there and find out what they needed. And he went out and surveyed, and he's employing three shifts a day when some of the larger companies are shut down, because he surveyed the market, he found out what their need was and then he came back and designed and standarized a product to meet their market.

And again, it's an interesting example where your large corporation—which we need, I'm not being denigrating to the large corporations—but they have set their pattern, they've set their tooling, they've done all these things and they're now expecting the world to meet their product standards rather than being flexible enough to ascertain what their local needs are in Indonesia or in the Philippines or whatever it is. And that's one of the great values of small enterprise in our whole economic system.

Mr. MULQUEEN. You're right.

Senator HATFIELD. You're probably going to argue with me on it.

Mr. MULQUEEN. I'm not arguing with you at all. We're very flexible. As a matter of fact, that's one or our things. We believe in failure at our place. If we get a failure, we just work it out and we do it again and again until we get it right.

The Indonesians, when I was down in Jacarat last year, they recognized that every time they use a barrel of oil inside the country it's a dollar that they don't have.

Senator HATFIELD. That's right.

Mr. MULQUEEN. And they've got lots of coconuts and lots of rice holes and lots of wood.

Senator HATFIELD. We'd better start realizing a little more of that same economics in this country.

Well, you have been very helpful. I get the message you support the bill, or at least get some kind of a coordination, whether it's precisely this format or whatever, but get a little more coordination to give you that kind of assistance you really feel like you need. Let me ask you one last question.

We have a number of military bases around the world. We have a major one at Subic Bay in the Philippines. I wonder if there's any way in which some of these bases might utilize as sort of demonstration or——

Mr. MULQUEEN. Absolutely. The Philippines like my burner. Photovoltaic is high tech. It's very glamorous and it has lots of things to do. It really doesn't save much oil, that's the problem.

For example, at Subic Bay, the laundry at Subic Bay, they've got lots of boilers at the laundry. We could convert those boilers in a couple of weeks and they could be running on coconuts or wood waste.

They have numbers of boilers on Subic Bay for all different reasons. I would say there's probably 30 to 40 boilers at Subic Bay.

Senator HATFIELD. Have you made an approach and, what was your response, if you did?

Mr. MULQUEEN. I wouldn't make an approach. I mean you're talking a 2- or 3-year talkathon, and I don't have the time to talk 2 or 3 years to the Navy just to get somebody interested in Subic Bay if they want to convert their laundry boilers to wood.

I mean what I'm saying is, it's a long-time process to work, a small company like myself; where I can go down in North Carolina or up to Pennsylvania and say, let me drive you down to this man's in Fredericksburg and show you how he saves 600,000 gallons of fuel. That's where it really is. We don't have the money to do international marketing or Government marketing.

Now, HUD, we were in a HUD project in Norfolk——

Senator HATFIELD. Let's don't leave that subject for a moment. Let me just question you. Are you saying that there's too long a time for decisionmaking for the military to consider converting their——

Mr. MULQUEEN. The first thing the military would do is make a study. They'll make a study, and they'll say can we use the program. So now we're going to go out on the street and we'll do an RFP to get some consultants to make a study on Subic Bay whether we're going to convert some boiler.

Senator HATFIELD. That's a feasibility study.

Mr. MULQUEEN. That's a feasibility study.

Senator HATFIELD. That's an EIS.

Mr. MULQUEEN. I drive to the A&P in an MG and I buy some M&M's. But the—the lead time is very long, and you're asking me, a small firm like me, to go up to the Navy, do all those things, and then they say OK, now we're going to throw this thing on the street and we're going to have——

Senator HATFIELD. Mr. Mulqueen, do you have such a burner that if they said today to you we'll buy one——

Mr. MULQUEEN. Yes.

Senator HATFIELD. You have one made that you could sell them?

Mr. MULQUEEN. Yes.

Senator HATFIELD. That could become a prototype or a pilot project?

Mr. MULQUEEN. Right.

Senator HATFIELD. For maybe the skivvies in the Navy there?

Mr. MULQUEEN. That's correct.

Senator HATFIELD. Not for the total laundry, but maybe just for the skivvies.

Mr. MULQUEEN. Probably the total laundry.

Senator HATFIELD. How many would it take to convert to the total laundry?

Mr. MULQUEEN. Well, each one of my small burners will save 300,000 gallons of fuel a year. My big burner will save about 500,000 gallons a year. I don't know if that's a lot of oil to you, but most—it's a medium size plant. The answer is yes.

Senator HATFIELD. We have a Secretary of the Navy—and I'm not here to try to commit him, because I haven't had any kind of an opportunity to even raise this question with him. John Lehman is a guy that cuts through redtape. He's a guy that gets action, and he's a man who has a great innovative mind. He's a man who can listen and understand something pretty quickly, and he's a man of action. What if I set up a meeting with you and John Lehman?

Mr. MULQUEEN. I'll be there.

Senator HATFIELD. You couldn't very well bring one of your burners with you, could you?

Mr. MULQUEEN. I can put it on a truck.

Senator HATFIELD. Put it on a truck in case he buys it on the spot.

Mr. MULQUEEN. It's only about the size of a large refrigerator. That's the thing that makes it so interesting, it's the size of a large refrigerator, but saves so much money.

Senator HATFIELD. You tell me one of those small burners could save 300——

Mr. MULQUEEN. Thousand gallons of fuel oil a year.

Senator HATFIELD. A year.

Mr. MULQUEEN. And it's doing it in the Department of Housing right now.

Senator **Hatfield**. And how much of that laundry that now operates at Subic Bay right now could one burner——

Mr. **Mulqueen**. I don't know the size of the boiler at Subic Bay, but I'm sure that they have a bunch of small boilers at Subic Bay that are doing the steam for the laundry.

Senator **Hatfield**. And there is today available that wood resource——

Mr. **Mulqueen**. Absolutely.

Senator **Hatfield** [continuing]. For the fueling of this burner——

Mr. **Mulqueen**. Absolutely.

Senator **Hatfield** [continuing]. Today in the Philippines?

Mr. **Mulqueen**. Yes, sir.

Senator **Hatfield**. Well, I thought there was, too.

Mr. **Mulqueen**. As a matter of fact, Shell just put in a—we've been working with Shell, they're building pellet plants in the Philippines now to process waste into fuel pellets.

Senator **Hatfield**. OK. I will be in touch with you. I'm going to call Mr. Lehman and see what can happen.

Mr. **Mayfield**. Mr. Chairman, may I add——

Senator **Hatfield**. You want to get in on this, too?

Mr. **Mayfield**. No. What I wanted to add is that this is a good example which you're discussing here that many agencies going into the Armed Forces as well as others, always want to reinvent the wheel.

Again, where our bill that we have before the Senate now might be able to help in this matter is that if you propose something to the Air Force they, in turn, wish to do their own internal study, their own look at what it is, et cetera, instead of going outside to look at one source.

Senator **Hatfield**. But you're operating this whole——

Mr. **Mulqueen**. Yes. It's been operational now for 3 years.

Senator **Hatfield**. It's operational now. The feasibility, the proving is all over with.

Mr. **Mulqueen**. It's all over with.

Senator **Hatfield**. All of that, the shake-down cruise is over, in the Navy language.

Mr. **Mulqueen**. Right. As a matter of fact, somebody from the Department of Energy about 18 months ago called us up—maybe 2 years ago, called us up and wanted us to apply for some research money, and we said we didn't need any—not research—but to develop a feasibility of whether our burner works. And we told them basically to pound sand because we know it works, it's out there operational. They said well, that's the only money we have, research money.

Senator **Hatfield**. What's your wholesale price for one of those things?

Mr. **Mulqueen**. About $70,000.

Senator **Hatfield**. Seventy?

Mr. **Mulqueen**. Most of our customers are getting paybacks in less than a year.

Senator **Hatfield**. That's their pencil and paper clip——

Mr. **Mulqueen**. Yes, sir, it is. It's cheap, and it works.

Senator **Hatfield**. Well, let's see what we might do. Again, I only seize on this as part of this idea of a pilot project. I see it not only in terms of the oil savings—and I'm assuming all you're telling me is true, and I have no reason to doubt you—but also to me it has lots of implications far beyond the enhancement of our trade by the sale of your product, but it also could establish some very excellent closer relationships between the people of the Philippines and our own presence there. Those situations are a little strained at this time.

Mr. **MULQUEEN**. The Philippine Government has a group called Gasification Equipment Manufacturing Co.—GEMCO—which is under the Humans Settlements Group under Mrs. Marcos, and they're keenly interested, and also the PNOC, Philippine National Oil Co., want to get into wood-burning.

Senator **HATFIELD**. Well, that's the 5-minute warning bell for a vote. I am very happy to have all you folks here today. It's been very helpful in our testimony. The meeting is adjourned.

[Whereupon, at 11:45 a.m., the hearing was adjourned.]

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